MARINE RECORD

ESTABLISHED 1878.

VOL. XXIII, No. 46. CLEVELAND---NOVEMBER 15, 1900---CHICAGO. $2.00 Per Year. 5c. Single Copy

LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

PRESIDENT.
W. C. FARRINGTON, Buffalo.

1ST VICE-PRESIDENT.
CAPT. J. G. KEITH, Chicago.

SECRETARY.
CHARLES H. KEEP, Buffalo.

TREASURER.
GEORGE P. MCKAY, Cleveland.

COUNSEL.
HARVEY D. GOULDER, Cleveland.

EXECUTIVE AND FINANCE COMMITTEE.
JAMES CORRIGAN, Chairman, Cleveland.

COMMITTEE ON LEGISLATION.
GIBSON L. DOUGLAS, Chairman, Buffalo.

COMMITTEE ON AIDS TO NAVIGATION.
GEORGE P. MCKAY, Chairman, Cleveland.

GREAT BRITAIN'S HEYDAY AS A MARITIME NATION AT AN END.

The enormous progress of the last five decades cannot be more readily appreciated than by a glance at the tables of the world's carrying trade during that period. Steam has been the instrument which has drawn the nations of the earth to closer and closer contact with one another. It has been the goal of every nation of any importance to obtain an efficient merchant marine, but none has been crowned with such success as Great Britain and her colonies; but recent developments in the German marine and of other countries show that she can no longer hope to remain at the head. In 1850 the British sailing marine registered 4,045,000 tons, and the tonnage of the steam vessels was 188,000, making a total of 4,233,000 tons, with a carrying power of 4,797,000 tons. In 1870 her sailing tonnage registered 5,947,000 tons, exceeding that of 1850 by 1,714,000 tons; the steam vessels registered 1,203,000 tons or 1,015,000 tons more than in 1850. The entire merchant marine registered 7,150,000 tons, being 2,917,000 tons greater than that of 1850. The carrying capacity in 1870 was 10,759,000 tons, or 10,759,000 tons more than in 1850. In 1898 the sailing marine registered 3,134,459 tons, being 2,813,000 tons less than in 1870, and 911,000 less than in 1850. The steam tonnage for 1898 was 7,057,148 tons, or 5,854,148 tons more than in 1870, and 6,869,148 tons more than in 1850. The carrying capacity in 1898 was 31,363,051 tons, or 20,604,051 tons greater than in 1870 and 26,566,051 tons greater than in 1850, this enormous increase being due entirely to the introduction of steam.

In 1898, as many as 358,030 vessels entered the ports of Great Britain alone, and their total amounted to 100,547,373 tons. At the same time 355,107 vessels with a total of 100,300,683 tons cleared. Of those that entered, 293,285 were in the coastwise trade, their total tonnage being 55,022,029 tons; 290,688 coastwise vessels of 54,462,061 tons cleared during the same period. Assuming that the number of working days in a year is 300, the daily entrances and clearances in all ports of the three kingdoms during the year 1898 was 2,377 vessels, or almost 100 per hour, the average to each of the vessels being 283 tons.

This record has no parallel in the history of the world, of course, and the old adage that "Britannia rules the waves," is, as we must admit, borne out by facts. However, the strides which other countries have been making during recent years—notably in the case of Germany—proves that she can no longer hope to remain so far in the lead. This belief is not mere sentiment, but is beginning to be known on all sides. Even at home they are learning that their prestige is on the decline. For instance, the well-known journal Fairplay, in an article headed "The British Flag No Longer Pre-eminent," has the following to say on the subject:

"Insular prejudice should not be allowed to stand in the way of a recognition of the fact that foreign shipowners are now no longer a negligeable quantity in shipping affairs. It may not be altogether a palatable truth, but there is undoubtedly good reason for pointing out that in certain trades the British flag no longer holds the pre-eminent or controlling position. Spanish owners are now practically in possession of the Bilboa ore trade, or at least can exercise a preponderating influence on the market. Greek shipowners monopolize many of the coal freights to their country, and are sometimes prepared to charter on extra cheap terms for Grecian ore cargoes, as the charterers concerned are well aware. Austrian ships have secured the bulk of the trade from Flume, Trieste and other Adriatic ports, and French vessels are excluding ours from the Algerian ports so far as cargoes back to France are concerned. Other intstances may be readily cited, and the question of subsidies directly or indirectly granted to foreign ships is a subject which will become more prominent when trade is again depressed. Competition with foreign shipowners is inevitable, and cannot of course be restricted by any conference or arrangement; but in many other matters all shipowners are equally interested, and mutual support ought to be forthcoming."—American Shipbuilder, New York.

LIFE-SAVING SERVICE.

S. I. Kimball, general superintendent of the life-saving service, in his annual report to Secretary Gage, of the Treasury Department, says at the close of the fiscal year the establishment embraced 269 stations, 194 being on the Atlantic, 58 on the lakes, 16 on the Pacific and one at the falls of the Ohio, at Louisville, Ky.

The number of disasters to documented vessels within the field of operations of the service during the year was 364. There were on board these vessels 2,655 persons, of whom 2,607 were saved and 48 lost. Six hundred and seventy-three shipwrecked persons received succor at the stations, to whom 1,477 days' relief in the aggregate was afforded. The estimated value of the vessels involved in disaster was $6,127,500, and of their cargoes $3,342,690, making a total value of property imperiled $9,470,190. Of this amount $7,234,690 was saved and $2,135,500 lost.

The number of vessels totally lost was 61. In addition to the foregoing there were, during the year, 329 casualties to small craft, such as small yachts, sailboats, rowboats, etc., on board of which were 781 persons, of whom five were lost. The property involved in these instances is estimated at $267,070, of which $256,770 was saved and $10,300 lost.

Beside the number of persons saved from vessels of all kinds there were 596 others rescued who had fallen from wharves, piers and other positions of extreme peril, many of whom would have perished without the aid of the life-saving crews.

AN important discovery of coal by M. Dunstan, the assistant geological surveyor of Queensland, has been reported from Brisbane. Mr. Dunstan is said to have found in the neighborhood of the Dawson and Mackenzie rivers a large extent of coal-bearing country. The coal in the vicinity is anthracite, and therefore of great value. Though useless for gasmaking, it is, for marine purposes, said to be especially valuable, being high in fixed carbon. It is believed that the area of country which is coal-bearing is at least 5,000 square miles.

SPONTANEOUS COMBUSTION IN COAL CARGOES.

The report issued by the Marine Department of the British Board of Trade, on the fire which took place on board the sailing ship Walter H. Wilson while on a voyage with coal from Cardiff to Coquimbo, contains some conclusions which are directly opposed to the accepted views on spontaneous combustion in coal cargoes. The report is by Capt. Castle and Prof. Threlfall, F.R.S. The Professor was recently president of the New South Wales Commission, which was appointed by the government to enquire into the causes of spontaneous combustion of coal in view of the great loss of coal-laden vessels from the Colony. This Commission made elaborate experiments, and reported that coal can safely be stacked up to a height of 17 feet, but above that spontaneous combustion takes place. They also found by experiment that the best way to prevent spontaneous fires was to wet the coal, and in the case of mixed cargoes of coal and coke—coal below and coke above—spontaneous combustion would take place.

Professor Threlfall's conclusion from his experiments is that the way to prevent spontaneous fires is to wet the coal. In the case of cargoes of large coal the only danger is in the heap of small coal under the hatchways. A most diligent search made into all the available cases of spontaneous combustion, of which the records are sufficiently precise, failed in bringing to light a single case of true spontaneous heating of large coal which had not originated under the hatchways. It follows, therefore, that if the coal under the hatchways is thoroughly wetted, the danger of spontaneous combustion will be avoided. In the case of small coal, such as that loaded on the Walter H. Wilson, the whole mass of the coal should be thoroughly wetted either before or during loading. If this were done, the coal could be loaded safely, and it would not be necessary to employ temperature tubes. The coal may be wetted either by salt or fresh water—it does not matter which, but it is an advantage to have the water as cold as possible, so as to cool the coal to the lowest practicable point. A royal commission which sat in this country some twenty years ago, recommended the shipment of dry coal, and the result has been that great care has been taken only to ship dry coal, and elaborate precautions were taken to prevent the coal getting wet. The new discoveries cannot be too widely known, as they are diametrically opposed to the current beliefs.

A large attendence is expected at the annual meeting of the Society of Naval Architects and Marine Engineers, to be held at 12 West 31st street, on Thursday and Friday, Nov. 15 and 16. Among the papers to be read will be "Capacity Test of a Unique Form of Air Pumps," by F. Meriam Wheeler, M. E.; "Interchangeability of Units for Marine Works," by W. D. Forbes, M. E., of Hoboken, N. J.; "Can Americans Compete with the British and Germans in building large Ships?" by Geo. W. Dickie; "Recent Designs of Battleships and Cruisers for the U. S. Navy," by Admiral Philip Hichborn, etc.

IN a communication to the Electrician, Mr. H. G. Barwell draws attention to a curious phenomenon observed in repairing submarine cables. Should the cable contain a splice in the portion lifted from the sea bed, then on connection to a telephone a buzzing noise will be heard in the latter as the cable is hauled on board. This buzzing is attributed to the fact that the surging of the ship brings varying strains on the splice, and thereby alters the resistance at this point. In fact, the buzzing was intensified as the splice came over the bow sheave, but ceased immediately the spliced portion was at rest on the deck.

CHICAGO.

Special Correspondence to The Marine Record.

At this writing grain rates are 1¾ cents on corn and 1⅞ cents on wheat. There was, however, a couple of cargoes of wheat placed at 2 cents.

The ice crusher Algomah has arrived at Menominee from the "Soo," and will take her place on the winter run between Menominee and Sturgeon Bay at once. She will keep the route open all winter and make daily connection for the Ann Arbor and Goodrich line steamers.

Hans O. Anderson, a sailor on the schooner A. W. Luckey, fell from the top of the cabin to the deck of the vessel in midlake Sunday and broke his neck. He died instantly. The schooner was brought back here and the body taken to the morgue. Anderson was thirty-three years old and leaves a family in Norway.

In the Supreme Court at Washington, on Tuesday, argument was heard in the Chicago drainage canal case. The proceeding is instituted on the part of the State of Missouri to secure a permanent injunction against the use of the canal for the protection of the water of St. Louis. Hon. Wm. Springer and Charles C. Gilbert appeared for the state of Illinois and B. Schnurmacher for the state of Missouri.

Grain rates advanced to 1¾ cents for corn and 1⅞ cents for wheat. On Tuesday two charters were made for wheat at 2 cents, and some agents claim that as the rate. Vessel capacity to take about 500,000 bushels of wheat was placed. In general the situation was far stronger than vesselmen had hoped for a week ago and a fair volume of business from November until the close of navigation seems assured to them. Talk about laying up the boats has mostly ceased.

The co-operative steamboat line to Manistee and North Michigan ports on the east shore will be run next season as planned. Negotiations will be begun in a short time for a steamer for the route. The boats will make three trips weekly carrying both passengers and freight. Merchants who have trade with the east shore will be stockholders in the company. Milwaukee had formerly a large business to Manistee, Frankfort, Charlevoix and neighboring ports, but lost it when the Chicago North Michigan line stopped touching at Milwaukee thee years ago.

Small boats that have been engaging in the lumber trade from Lakes Huron and Michigan, have commenced to lay up for the winter, the weather being too severe for them. The storms of the last few days have decided many of the owners on this course. The lumber trade is strongly affected by this movement, and as a result tonnage for certain ports is getting scarce. The rates are advancing a little now and then, growing stronger in out-of-the-way places, but no changes have been made from the head of the lakes or the chief basing ports. The lumber trade is as heavy as the tonnage will permit.

There are some questions coming up for discussion relative to the lake trade, but these will be put to a general vote later on, instead of being settled in the convention. The unions at Milwaukee, Cleveland, Buffalo and Chicago will give balls this winter, the proceeds of which will be given toward a library fund of the United States Marine Hospital Sanitarium at Ft. Stanton, New Mexico, for consumptive sailors. At the last annual convention of the International Union it was decided to do this, and the Chicago ball will be given Dec. 1, at Scandia Hall, Milwaukee Ave. and Ohio St. The ball is the twenty-first annual event for the local union.

The steamer Tampa had two delays in the south branch on Monday. First she went across the river at the Sixteenth street railroad bridge in coming out from the "E" elevator slip. Tugs released her without shutting off the controlling works at Lockport. When the steamer arrived at Madison street the harbor master told the captain he must not try to pass Washington street tunnel, as the water in the river was very low. A draft of sixteen feet six inches would have been ample for the stage of water, and the Tampa was down to over seventeen feet. South Halsted bridge went out of working order Sunday afternoon, owing to the stranding of a cable. The damage was soon repaired.

The delegates from the lake seamen's unions to the fifth annual convention of the International Seamen's Union were on Tuesday announced by President William Penje as follows: William Penje, Chicago; George Hansen, Buffalo; William McFadden, Buffalo; William Egan, Cleveland; Enoch Maraden, Cleveland; Fred Benson, Ashtabula; James Corbett, Ashtabula; Harry Nelson, Duluth; M. Michaelson, Milwaukee. There were twenty-two nominations made for delegates from the various local unions and nine receiving the largest number of votes were elected. The convention will be held in Boston in the week commencing Nov. 26 and will probably last until Dec. 1. There will be fifteen delegates present in all, including the nine from the lakes given above, three from the Pacific coast and three from the Atlantic coast. At the conclusion of the Boston meeting the lake delegates will hold a meeting in Buffalo, which will last a week, and will probably begin Dec. 3.

Tied up at the head of Poydras street, New Orleans, is a little steam yacht which came all the way from Chicago, and is bound for Mobile. She is the Lady Jane, 60 ft. boat, built about two years ago by the Marine Iron Works of Chicago, and used largely as a pleasure craft, but she is destined for double duty down on the Alabama river. She was bought by a large sawmill owner, Mr. Hand, who will use her for the purpose of towing logging rafts down the Alabama river, and also for hunting and fishing parties. She has a 12 foot beam, and draws 4 feet 8 inches. She seems to be a stanch little craft. With Capt. Fred Pulver in command and Engineer G. H. Van Alstine she left Chicago just three weeks ago, and coming through the Illinois and Michigan canal to the Illinois river, got to the Mississippi, and came down to New Orleans by easy stages, traveling only in the daytime. At St. Louis they took on an old river pilot and the party of three had a delightful trip down the river.—Waterways Journal, St. Louis.

Although not officially announced as yet, it is more than probable that the twelve steel steamers of the American Steamship Co.'s fleet have been sold to the American Steel & Wire Co. If the price reported—$5,250,000—is anywhere near correct, John W. Gates and his associates in the steamship company, which was organized independently of the big steel and wire organization have made a round sum of money out of these vessels. There are twelve of them—W. H. Gilbert, Zenith City, Queen City, Crescent City, Empire City, Superior City, John W. Gates, J. J. Hill, Isaac L. Ellwood, Wm. Edenborn, Palmer and Wolvin. It is understood that the steamers Paraguay and Asuncion and barges Loyalty and Liberty, vessels built for coast service and which are owned by a company whose stockholders are largely the same as those of the American Steamship Co., are not included in the transaction. The steamers involved in the sale were built at an aggregate cost of about $3,350,000. They have undoubtedly earned about $1,000,000 during the season now closing for Mr. Gates and his associates in the American Steamship Co. Management of the vessels will probably not change.

CLEVELAND.

Special Correspondence to The Marine Record.

The ore movement is about over for the year. The only wild cargoes being offered are from Escanaba, and these are so scarce as to be hardly worth consideration.

Freights are on the upward movement, 30 cents being the going rate to the head of the lakes, an advance of 5 cents. A great rush of coal shipments is expected from now on. The Lake Michigan rate is still unchanged. It is reported that vessels chartered early in the season are still getting 50 cents on anthracite coal to Lake Superior.

The steamer W. P. Palmer, bound for the upper furnace, was aground for a couple of hours, on Monday, in the draw of the Big Four bridge. She made two attempts to get through aud got stuck each time. Trains on the Erie and Big Four roads were delayed. It is simply ridiculous not to allow vessels to enter the port through a lack of dredging.

There is a demand for vessels for Milwaukee. The boats are now showing a tendency to lay up, and the shippers of coal to Lake Michigan, not being satisfied with the tonnage that is going after grain, is willing to forward coal, making it an inducement to the owners to go to Milwaukee. The prospects for an increased rate to Milwaukee are better now than they have been for weeks. No change is made yet, but better freights are in sight.

The Thew Automatic Shovel Co., of Lorain, has made shipments in the past six weeks of six steam shovels of its single truck type, operating in a complete circle and particularly designed for handling iron ore. Three of these went to the Carnegie Steel Co.'s docks at Conneaut, O., making six Thew machines now in use at that place. The other three machines went to Cleveland and Ashtabula docks. By the end of the season the manufacturers will have placed 15 machines of this particular type with the various steel companies and ore-handling interests.

Duluth grain shippers were in the market for tonnage on Monday, and for vessels to hold wheat at Buffalo 2¾ cents was offered, but there was no business done, as vesselmen refused to charter at that figure. Local owners were offered cargoes at Chicago freely at 1¾ cents on corn to Lake Erie. There is nothing doing in ore freights and the rate on first-class lumber cargoes from the head of Lake Superior is $2 50. Coal tonnage was in fair demand. While rates to Duluth, Milwaukee and Chicago are unchanged, shippers are forced to pay better rates to some ports. The rate to Green Bay and Escanaba is 35 cents and 55 cents was paid to Portage.

The ladies' auxiliary of the Ship Masters' Association did a generous thing for the boys at the Jones Home on Pearl street, yesterday. All summer the ladies worked on a quilt. It was pieced at odd times and was but recently sold. They realized about $60 upon it, and yesterday went out to the home and took the boys down to the May Co. and fitted them out with winter clothing. The Big Consolidated Co. heard of the enterprise and offered a special car free for the purpose, so that it was an outing for the boys as well as a treat. Mrs. F. W. Stanton, the wife of the master of the Watt, is the president of the auxiliary, and headed the movement in behalf of the boys.

BUFFALO.

Special Correspondence to the Marine Record.

Fire broke out in the oil room of the steamer Bulgaria, Wednesday evening, as she was tied up at the Marine elevator. The hull was damaged about $1,000.

The steamer Georgetown, built for coast service, left here on Sunday for New York. She took 700 tons of coal on board, which will serve as fuel on the whole trip.

There is no change in the freight rates, all being 30 cents but Fort William, which pays 35 cents. Brokers say that it is not going to get an advance so long as boats are going to Ohio for 25 cents, taking soft coal.

The 7,000 tons noted as shipped last week for Duluth was all in one cargo, being taken by the new steamer Elwood. It is probably the largest coal cargo that was ever loaded on the lakes. As a rule the 500-foot steamers do not ask for coal.

The shipments of anthracite westward by lake last week were 32,700 tons, distributed as follows: Milwaukee, 16,700 tons; Chicago, 8,100 tons; Duluth-Superior, 7,000 tons, and Fort William, 900 tons. Soft coal is in much better demand and there is no surplus as was thought immediately after the anthracite strike was settled.

There is naturally a renewed interest in the hard coal situation, but all shippers report that the demand is light for all the fairly complete stoppage of the supply so long. The weather is so entirely against the business, and there is no prospect of a change of prices or of a new scarcity of the supply that buyers are indifferent.

The British steamer Monkshaven arrived at Ogdensburg on Monday with steel billets for Avondale, England, being part of the Carnegie shipment. She was loaded ten inches too deep for the St. Lawrence canals, and had to be lightered through to Montreal. Next spring the steamer will load a cargo of general merchandise at Genoa, Italy, for Chicago.

When the crew of a schooner, which arrived at Prescott, Ontario, from Cleveland this week, learned that the owners were to take the vessel back to Cleveland and lay her up for the season, they quit work, leaving the captain and the mate in charge. The schooner will now go into winter quarters at Prescott. The men say the owners refuse to pay their railroad fare back to Cleveland.

The tug Fischer, of Erie, came into port on Wednesday, after making a search of Lake Erie for the two barges she was forced to let go off Long Point in the gale on Tuesday. The barges were loaded with pulpwood for Niagara Falls and became water-logged. The tug took the crew off and went into Erie. The captain of the Fischer thinks the barges must have gone down, or stranded at some point which he could not pick up.

The papers of incorporation of the Iron Elevator & Transfer Co. were filed with the county clerk of Erie county on Tuesday. The capital stock is given at $100,000 and the directors are Milton Churchill, Chicago; Leroy S. Churchill, Toledo; Geo. W. Bartlett and Thomas E. Ferguson, of Buffalo. The purpose of the company is the erection, maintenance and operation of warehouses and elevators for the receipt, storage and transfer of grain and other merchandise.

The October lumber receipts at the port of Tonawanda and North Tonawanda show a decided increase over those of September, the gain being 16,606,167 feet, but they are 32,966,497 feet less than October of last year, which was the largest month in the history of those ports. Up to the present time about 350,000,000 feet of lumber have been brought into the ports of Tonawanda this season and they bid fair to exceed the 400,000,000 mark before the close of navigation.

It is not settled yet whether there is to be an effort to regain any of the lost ground in lake shipments of anthracite, though all the companies are looking for lots of coal soon. So far there is an actual shortage of 700,000 tons from last year, and it is estimated that the present month, with the falling off at Erie, will bring the aggregate up close to 1,000,000 tons by the end of the season. There is, however, lots of time for heavy shipments to take place before the close of navigation.

The Kingsford Foundry & Machine Works, Oswego, N. Y., is very busy in all departments. Several foreign shipments of centrifugal pumps have recently been made, and many unfilled orders still remain on its books. Its new boiler plant is nearing completion. The equipment will include three hydraulic riveters. The main building will be 315x120 feet. A 30-ton electric crane with a span of 50 feet will run the entire length of the building. All tools are to be driven with independent motors.

Although it was announced when the Union Dry Dock Co. changed hands two weeks ago that Messrs. Warfield and Gaskin bought the property, it is now reported that the American Ship Building Co. has secured control of the plant, including contracts, and has taken charge. The American Ship Building Co. bought the two docks of the Buffalo Dry Dock Co. some time ago and both plants will be merged. Mr. Gaskin will remain as superintendent. The new company will be known as the Union Ship Building Co., and it will execute all the contracts made by the Union Dry Dock Co. The American Ship Building Co. now has three large shipyards on Lake Erie. The Craig yard at Toledo, and the Jenks yard at Port Huron, are the only yards on the lakes where steel vessels are built that are not operated by the American Ship Building Co.

DULUTH—SUPERIOR.

Special Correspondence to The Marine Record.

One of the most important Mesabi deals in months has just been closed by Corrigan, McKinney & Co., of Cleveland. The property is on the eastern edge of the range and is reported to contain vast deposits, which can be cheaply mined.

The reports are that 2 cents is being offered on grain. Three cents is still being talked of for winter storage, and some vessels have been placed in the hands of brokers to charter for that rate if nothing better is afforded. The lumber business is light, with no change in the rates.

On account of the rough weather tugs have not been able to get to the Arabian, ashore above Whitefish Point. They are in shelter behind the Point waiting for favorable weather. There is every indication, however, that little chance will be given the tugs for a day or two yet, snow storms are predicted and a good deal of bad weather is at hand.

A short crop in the northwest was the cause of a large falling off in the movement of grain from Lake Superior this season, as compared with 1899, but it is still more than probable that the canal records at Sault Ste. Marie will show with the close of the season a total of nearly 26,000,000 net tons of freight moved, or about 1,000,000 tons more than in any other year.

A lifeboat propelled by a 12 horse-power gas engine, was given a severe test in the heavy storm at Marquette last week. It ran out into the open lake in the teeth of a fifty-mile gale at the rate of six miles an hour. The boat was handled with entire success. An oar propelled boat would not have been able to round the breakwater. Capt. Cleary, of the Marquette station, will report to the government on the trial, and it is believed that the adoption of engines for general use in lifeboats will follow.

The schooner A. C. Keating, which broke away from the steamer City of New York in the recent gale on Lake Superior, went ashore above Copper Mine point and has become a total loss. The spot where the Keating stranded is a rocky beach, twenty-five miles above Whitefish Point, on the Canadian shore. The New York started out to find the barge. The hold was full of water, and it was impossible to effect her release. The vessel was stripped of everything of value and the New York returned here. All of the crew of the barge were saved when their boat went ashore. The Keating was built in 1874 and was a small vessel, being 138 feet long and 26 feet beam. She was owned by Thomas Currie of Port Huron.

The Duluth, Missabe & Northern road will get through shipping ore for the season next week. The Eastern Minnesota is also nearly through, and the movement of ore from the western part of the Mesaba range is nearly done. The Adams is the only mine now shipping over the Missabe road. The Duluth & Iron Range road, however, will continue shipping up to the close of navigation. "We have set no limit on the end of the ore shipping season," said President Greatsinger of the Iron Range road. "We shall send the ore forward as long as the season of navigation continues. The movement of ore over our line will continue into December if the boats can keep taking it away that late." The Duluth & Iron Range road is still shipping from nearly all of the mines on its system except the Oliver properties. These discontinued shipping some time ago. As far as the Duluth & Iron Range road is concerned, this season will resemble last season. The company last fall shipped up to the last moment. The Missabe and Iron Range roads both shipped up into the first week in December last year.

DETROIT.

Special Correspondence to the Marine Record.

Antoine D'Ennoye, engineer of the tug John Owen, fell overboard on Tuesday afternoon, near Alpena. He was picked up by the tug, but died soon after being taken out of the water.

The light-house tender Marigold left Detroit on Tuesday for the purpose of taking up all the buoys in Lake Huron. These buoys will be replaced by winter markers. The buoys in Lake St. Clair, St. Clair river and St. Mary's river will be left in place as long as the ice in these waters will permit.

J. J. Hill, of the firm of Morley & Hill, has moved the plant of that company to Tacoma, Wash., where he will engage in shipbuilding. During the time the plant was in operation at Marine City, it built the steamers, W. B. Morley, St. Lawrence, Iroquois, J. J. Hill, and many other wooden boats.

General Manager Carter of the D. & C. line, states positively that the steamers City of Mackinaw and City of Alpena will not be lengthened this winter, as was reported some weeks ago. The proposed change would make the boats each thirty-four feet longer and add 35 per cent. more freight and 30 per cent. more passenger capacity, but it would cost too much money at the present prices, to carry out the work.

The work of removing the wreck of the schooner Richards was begun by Capt. H. W. Baker this week. Capt. Baker was one of the wreckers who moved the Richards from the Canadian side of the river to the American channel below Belle Isle, and together with the owner of the boat was summoned to appear before the United States commissioner on charge of blocking the channel. It is said the insurance companies recovered $14,000 worth of the ore cargo of the Richards.

The Boston Dock Co. owners of the steamer Appomattox, schooner Santiago and Inter Ocean, filed a cross-libel suit in the United States Court here this week, against the St. Clair Steamship Co., owners of the Kaliyuga and sunken schooner Fontana. The dock company puts the blame on the latter boats for the collision in which the Fontana was lost, claiming that the Kaliyuga failed to starboard and did not control her tow. The Fontana's officers are also charged with incompetency.

The work of raising the sunken schooner Martha has been progressing slowly and the temporary bulkhead where the Wilbur crushed in the schooner's stem is now about three feet from the surface of the water. It is expected that the bulkhead will be completed by Thursday night and that pumping can begin Friday. A dispatch from Cleveland states that about 1,500 tons of the Martha's ore will be lightered and taken down in other boats of the Minnesota line as soon as the bulkhead is completed and the ore can be relieved of water.

Evidence of the value of the marine postoffice service to the sailors of the lakes is the fact that in the past year the amount of mail, letters and papers, received and sent, has increased this year fully 25 per cent. Last year there was about that ratio of increase, which means that the amount of mail received and sent has more than doubled since Postmaster Dickerson added the marine postal service to Detroit's free delivery. The number of money orders gradually increases, showing that all classes of sailors are glad to have an opportunity to keep in closer touch with their families and send their money home.

FLOTSAM, JETSAM AND LAGAN.

Bilge keels are being fitted to all the French coast-defence ships, in order to counteract their rolling tendencies.

The Navy Department is inviting tenders for six armored cruisers. Bids will be received until December 7, 1900.

Contracts are about to be placed by the Carnegie Steel Co. for the construction of two or three steamers to carry each about 8,000 tons.

Two large twin screw steamers are about to be built by the Maryland Steel Co., for the firm of Kidder, Peabody & Co., of Boston, Mass.

The contract for the re-building of the North German Lloyd steamer Maine, which was damaged in the great fire at Hoboken, has been given to the Newport News Co.

The Hamburg-American line has ordered from Harland & Wolff, of Belfast, a steamship 750 ft. long, 46 ft. longer than the Oceanic, to carry 2,000 passengers, including 450 first cabin passengers, and 12,000 tons of dead load, to be launched in 1903.

The steel steamer Paraguay, belonging to the International Steamship Co.. of which A. B. Wolvin is president, has been enrolled at Duluth. The boat was built this year at Lorain, O., and is 242 feet in length, 42 in breadth, and 26.5 in depth. Her gross tonnage is 2,201 tons, and net 1,323.

It is now turned two years since Lieutenant Peary, U. S. N., the Arctic explorer, has been heard of. He sailed for Greenland—this was his fifth voyage—on July 7th, 1893, and the last message he sent to civilization was dated August 13th, 1898, and read: "So far, all my plans have been successfully carried out."

The steamship Paris, of the American Line, is undergoing extensive alterations in the yard of Harland & Wolff, Belfast. The vessel's stern is being reconstructed, and new engines and boilers are being fitted. Only two of the three funnels are being retained. In future, it is stated, the name of this steamer will be "Philadelphia."

H. H. Gildersleeve, manager of the Lake Ontario and Bay of Quinte Navigation Co., is having plans and specifications prepared for a new steamer to be built this winter at Kingston, Ont. He has also been inspecting the steamer John Endicott, at Boston, with a view of purchasing it for the Bay of Quinte route next season.

Eastern shipyards are unsually busy and the election result has given a decided impetus. The Maryland Steel Co., Sparrow's Point, Md., are building for the Atlantic Transport Co., the two largest steel passenger and freight steamers ever constructed in this country. They will cost $1,500,000 each and are to be delivered next spring. Work has been begun at Roach's ship yards, Chester, Pa., on the new vessel contracted for lately by the Maine Steamship Co. The ship will cost $400,000.

The North German Lloyd Steamship Co. have placed an order with the Keystone plant of the American Bridge Co. for the erection of a foundry and blacksmith shop in the company's shipyard at Bremen, Germany. This is considered by the Carnegie Steel Co., which furnish material to the American Bridge Co., a most important foreign order for that class of material. This is due to the fact that the company competed successfully with German concerns right at home. The contract calls for 800 tons of structural steel, the greater portion of which will be made at the Homestead works.

The three shipbuilding firms which have heretofore bid upon the construction of warships, the Union Iron Works, of San Francisco; the Cramp Building & Dry Dock Co., of Philadelphia, and the Newport News (Va.) Ship Building Co., will have much new competition when the bids for new vessels are opened December 6. It now appears that these firms will have as rivals the Fore River Ship Building Co., Weymouth, Mass.; Townsend & Downey, of New York; the New York Ship Building Co., of New York; the Trigg Engine and Ship Building Co., of Richmond, Va., and the Risdon Iron Works, of San Francisco.

The Canadian Manufacturer is in receipt of a letter from a party in the city of Mexico who desires to be placed in communication with parties who would supply as follows: A steel hull river steamer which can also be used for towing purposes; length 65 feet, breadth 15 to 18 feet, powerful machinery, speed 12 to 14 miles per hour: two decks—one for accommodation of second-class, and upper deck for first-class passengers with awning and ladies' room to contain four beds. Boiler for wood fuel. Draft of water not exceeding 20 inches when carrying 15 tons of cargo and 30 passengers. A stern wheel steel hull steamer 60 feet long maximum draft of water 24 inches. Boiler for wood or coal fuel. Power sufficient to tow a barge of 25 tons cargo capacity at the rate of five miles per hour against a five mile current. A complete outfit of machinery for an extensive tanning establishment upon which about $100,000 gold is to be expended. Further particulars may be had upon application to the Canadian Manufacturer, Toronto.

LETTERS AT DETROIT MARINE POST OFFICE.

November 14, 1900.

To get any of these letters, addressees or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of this list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

Adams, Alex.	Mathison, Thomas
Adams, Jos.	McAllister, Mrs. M.
Burns, J. C.—2, Roman	McCoy, Jas., Pridgeon
Black, Burton—2, Maunaloa	Northrup, Henry, St. Louis
Buckly, Jerry	Nicholson, S. L., I. J. Ree
Chapman, Capt., Sanford	Nolan, Geo.
Coon, Geo., Vail	Pocock, Henry, Pheni
Coates, Geo. F., Vail	Preston, J. E.
Doyle, John, Williams	Pullen, Thos., LaSalle
Deacy, C. Naubeshene	Palmattier, Geo., Redding
Eggleston, Dan	Peterson, Frank
Ekland, Chas.—2, Tampico	Quackenbush, E.—2, Palme
Foley, Frank, Marcia	Rainey, John W.
Fitzgerald, Jas., Jas. Owen	Riley, Thos. J.
Gorall, Chas., Olympia	Reid, James, Ugandi
Hawey, Wm., Baldwin	Smith, F. W., Ugandi
Huddleson, W. E., Aug. Smith	Sweeney, Jos., Champion
Keeble, Wm., Cobb	Smith, Albert A. Baldwin
Keough, Daniel	Smith, James, Iroquois
Kirkendall, Joe, Plow Boy	Van Patten, Capt., Phenix
Lanthropp, Jim, Tampico	Vasold, Clara, Stone
LaForge, Fred, Lasalle	Williams, Thos.—2, J. E. Owen
Murray, Jos. S., Ravenscraig	Walka, Will, Chas. Foster
Moore, Willie	Wright, Harvey, J. L. Green
Merrill, F. C., Eureka	Yates, Frank

F. B. DICKERSON, P. M.

NOTICE TO MARINERS.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., November 13, 1900.

LAKE SUPERIOR LIGHT-STATIONS—CLOSE OF NAVIGATION, 1900.—Notice is hereby given that the lights and fog signals will be maintained at the following named light-stations until December 1, after that date they cannot be depended upon, but they will be kept in operation as long as practicable thereafter: Granite Island, Huron Island, Stannard Rock, Manitou, Gull Rock, Outer Island, Michigan Island, Raspberry Island, Devil's Island, Sand Island, Isle Royale (Menagerie Island), Passage Island.

MARBLEHEAD LIGHT-STATION.—Notice is hereby given that on or about November 20, 1900, the fixed white light of the fourth order at this station will be temporarily discontinued for the purpose of making improvements to the tower lantern, and a fixed white lens-lantern light will be exhibited in its place during the progress of the work.

This station is located on the northeasterly end of Marblehead and the southerly side of the channel between Kelleys and the Bass Islands and the mainland.

By order of the Light-House Board.

FRANCIS J. HIGGINSON,
Rear-Admiral, U. S. Navy, Chairman.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 11TH DISTRICT,
DETROIT, MICH., November 14, 1900.

ST. CLAIR RIVER, MICH.—Notice is hereby given that the establishment of a light by Canadian authorities on the shoal to the southward of Stag Island and the removal of the wreck of the Fontana render the continuance of the red and black horizontal striped buoy on the south end of the shoal extending to the southward of Stag Island, and the two black spar buoys placed off Ft. Gratiot Light Station to mark the west edge of the channel opposite the wreck of the Fontana, no longer necessary. They are therefore discontinued from this date.

By order of the Light House Board:

J. C. WILSON, Commander, U.S.N.,
Inspector 11th District.

ELECTRIC TRACTION FOR CANALS.

Some interesting experiments in boat traction by means of electric locomotives were recently made on behalf of the Prussian Government by Messrs. Siemens & Halske, of Berlin. The scene of operations was a short length of the Finow canal, which forms a portion of the waterway between Berlin aud Stettin, and is traversed every year by about 25,000 to 26,000 boats each way. The craft used are in the main barges, some 132 feet long by 15 feet 6 inches beam, carrying 150 to 175 tons. There are also a few steam barges employed, which carry about 150 tons and can tow a second barge. The traffic to Berlin is much heavier than toward Stettin, and as a consequence three-fourths of the barges return light from the metropolis. Traction is generally effected by horses, there being a towpath on each bank, but on the down journey man traction is not infrequently relied on. In any case the speed is low, and including stops, does not average more than about 1¼ miles per hour.

The section of canal used for the experiments was selected owing to its physicial difficulties, presenting as it does several curves, in one of which with only 328 feet radius the water way is spanned by a railway bridge. The line laid down for the towing engine was of 1-meter (3.28 feet) gauge, he outer rail weighing 18.2 pounds per yard, while the intner, which was fixed on the inner edge of the towpath, weighed 9.1 pounds per yard. These rails, which were of the flange type, were laid partly on sleepers ballasted with gravel and partly on b l o c k s of concrete, weighing 220 pounds each in the case of the heavier principal rail, and half this in case of the other rail. This arrangement costs more per mile than the sleepers, but has been found less expensive to maintain. Though no wharf actually existed on the length of canal experimented on, the arrangements necessary were fully tested. At one point, the line was raised to a height of 9 feet 6 inches above the level of the towpath, being carried on posts and brackets. The carrying posts were 12 inches in diameter, and were spaced at 18 feet 8 inches. A cap piece spanned the gap between posts and the principal rail was laid on this cap piece, while the other was carried by a stringer, supported at each post on brackets.

The conductor for the cnrrent was supported on pine posts23 feet long, located 35 to 44 yards apart. It consisted of 8-millimeter wire, carried by porcelain insulators. The principal rail served as conductor for the return current. The source of power was a 15-horse-power portable engine, driving a 9-kilowatt dynamo; and a large storage battery was also provided. The extreme dimensions of the towing locomotive were 6 feet 10 inches in length by 4 feet 10 inches wide. Its total weight was 2 tons; but the motor was so placed that only one-fifth of this total came on the accessory rail. The motor provided was much more powerful than necessary for the work in hand, as it was capable of working at the rate of 14 to 15 horse-power. Since, however, these experiments were merely preliminary ones intended to test the possibilities of electric traction for large barges, the excess power was supplied intentionally, and the resistance requisite to call forth the full powers of the motors was in some of the experiments provided by rafts. These experiments showed the system to be capable of meeting all needs, working, as it did, with safety and economy.

RICHARD GUENTHER, Consul-General.

Frankfort, August 10, 1900.

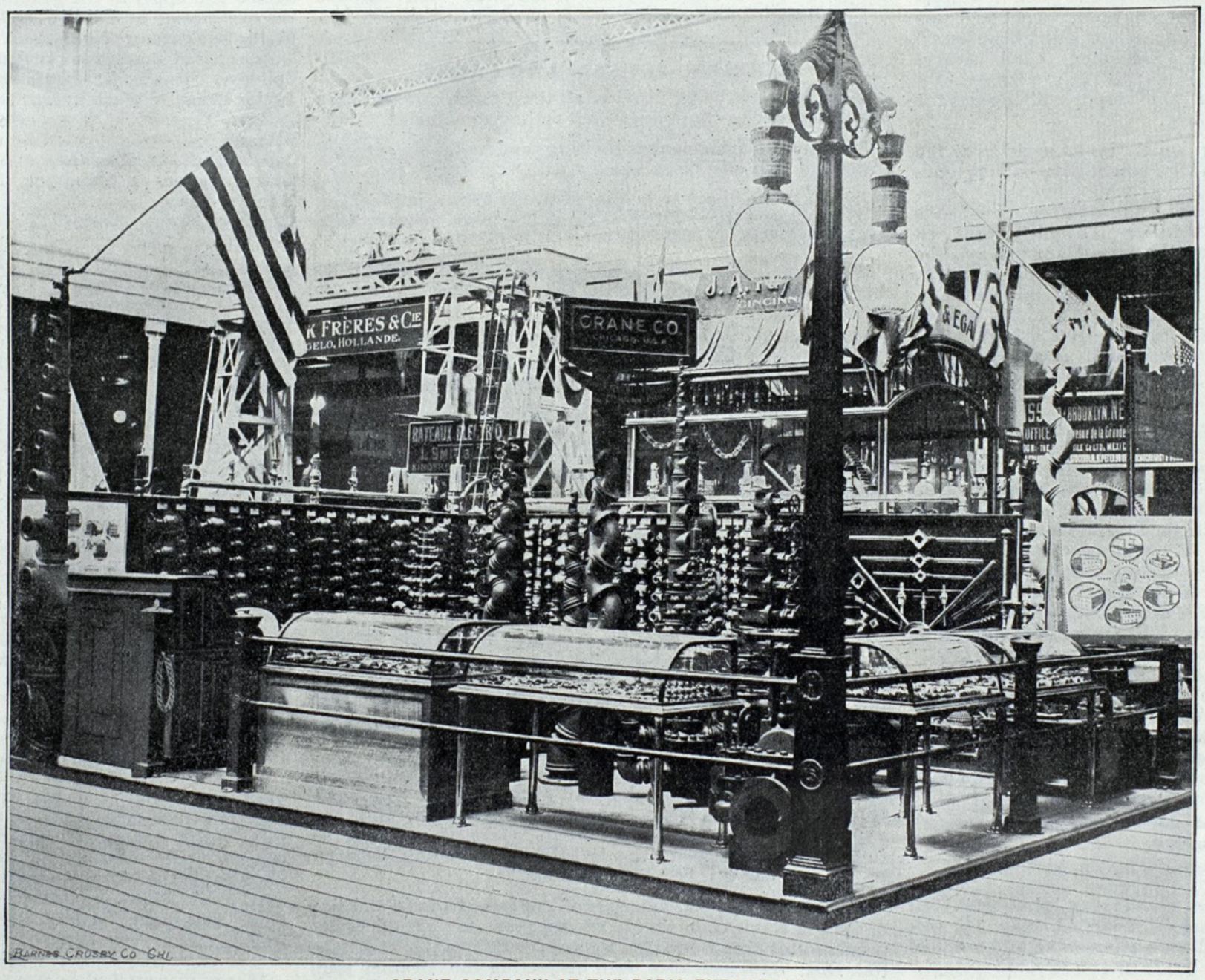
CRANE COMPANY AT THE PARIS EXPOSITION.

(ILLUSTRATED).

One of the exhibits at the Exposition Universelle, Paris, which attracted wide attention was that of Crane Co., the largest manufacturers of valves and fittings in the world, the head offices and factories of which are located in Chicago.

This exhibit occupied a desirable position in the Palace of Machinery and Electricity, Champs de Mars, and consisted of brass and iron valves and cocks for all pressures, brass and iron fittings, steam specialties, engineers' supplies, and steam and gas fitters' tools. Cut herewith.

Crane Co., was the only exhibitor of this class of goods to receive a gold medal. The exhibit was tastefully arranged as will be seen from the accompanying photograph, and gave an especially good opportunity to visitors to study approved modern methods of piping, flanged work, etc., for power plants—a branch of the business of this company which has become very important.



CRANE COMPANY AT THE PARIS EXPOSITION.

NAMING SIX MASTS IS NOT EASY.

The ancient mariners's suggestion that the masts of a six-masted schooner be named for the days of the week has not yet been accepted by the captain and crew of the George W. Wells.

"How would it sound to shout such orders as these," said the mate of the new six-master when asked his opinion of the new six-master: "Furl 'Wednesday,' 'Lower away the Tuesday peak,' 'Reef Monday,' 'Ease your Friday sheet,' and a lot of stuff like that?" It was conceded that it would be queer-sounding sailor talk, and yet that it would be easy to remember.

At the present time the question of naming the sails of five and six masted schooners is a puzzle that the skippers themselves cannot solve. Capt. Crowly of the Wells says that he undertakes to call his six masts the fore, main mizzen, No. 4 No. 5 and spanker. Sometimes it works all right, but at other times men will go aloft and persist in getting themselves all mixed up, calling No. 4 the spanker, and all that sort of thing. The captain thinks that, according to the books, the masts should be fore, main, mizzen, spanker, jigger and driver. But, on the other hand, he thoroughly believes that the spanker should always be the after or last mast carrying a big sail. He says that people can call them Monday, Tuesday, and all that sort of thing, but he is going to give his present scheme a fair trial before he makes any change.

FISH FARMING

In many respects the government fisheries' exhibit at Buffalo next summer will be the finest ever attempted. It will be housed in a building 150 feet square which will form a heel calk in the horse shoe plan of the government buildings. Characteristic representation of life, manners and customs of Porto Rico, Hawaii, the Philippines, Guam, Tutuila, Manua and Cuba, will occupy the other heel calk. The heavy turn, and toe calk of the shoe will be represented by the main government building, 130 by 600 feet. These important buildings will be connected by an imposing colonnade forming the curved side of the shoe and partially enclosing a water court.

The fisheries exhibit will thus have a setting of considerable magnitude occupying a commanding position in an exceedingly cosmopolitan neighborhood. Many features of dominating interest will receive careful consideration in this exhibit, but one of which could be mentioned in a short descriptive article.

German carp, that much maligned and discredited food fish, will be represented at its true value. Like the history of lake sturgeon, when it is better known, it will be appreciated.

In Germany, carp is cultivated as a farm product. Streams are dammed, which causes the water to overflow areas of several hundred acres in extent. Once each year, in cold weather when the fish are at their best, the water is drained off and the largest fish scooped from shallow pools with dip nets. In this manner, a pond containing 250 acres of water has been made to yield 40,000 pounds of carp per year. A thorough business is made of catching the fish and shipping them immediately, while in proper condition, to the larger markets through out the country.

At the outlet of the pond, a floor is built with sorting tables and large tubs of water in which the fish are cleaned and otherwise prepared.

The men and women out in the pond, barefooted, with little protection from the cold, have the disagreeable part of the work. A fire is often lighted on the higher ground at which they may occasionally warm themselves. During the fish harvest, the poacher is a constant nuisance, a watch being required day and night until the pond is refilled.

That carp are appreciated on the German market is illustrated by the fact that the output from one of these carp farms amounting to about 42,000 pounds of fish brought £1,670 sterling, or about 20 cents a pound of our money.

In the United States no fish is regarded with favor unless it is classed as a game fish. This in popular parlance includes several varieties of bass, pike and pickerel that a fullblooded sportsman would not consider worthy of his royal attentions. Technically speaking, a game fish has a straight cut tail, split or forked tails being entirely eliminated.

As population increases, we will be required to revise our knowledge and opinions in regard to fish. Catfish, the lazy breeds of salmon, carp, eels and many other varieties of food fishes will be cultivated and grown as they are in older countries. Many rural streams that are simply running to waste should be sheltered and stocked with suitable varieties.

The exhibit at the Pan-American Exposition will illustrate how this can be done under favorable as well as unfavorable circumstances. The question is simple as raising poultry when it is properly understood.

THE HAMBURG-AMERICAN LINER DEUTSCHLAND.

The Hamburg-American Line twin-screw steamer Deutschland is the fastest Atlantic mail and passenger steamship afloat. The principal dimensions are: Length 662 ft. 9 in., length over all 686 ft. 6 in., breadth 67 ft., and depth molded 44 ft. The net registered tonnage is 16,000, and the load displacement about 23,000 tons. The vessel's rig is of the lightest description, there being only two pole masts. The rudder is totally submerged and the propellers are carried close in and well under the hull, an aperture being provided as in single screw propelled vessels. Spare steering gear is fitted below the water line. The launching weight of the hull exceeded 9,200 tons. There are four funnels, the boilers—twelve double and four single ended—having altogether 112 furnaces, being placed in four water-tight compartments, a fifth and central compartment being devoted to a large cross coal bunker, so causing the greater space between the second and third funnel. The double-ended boilers are 20 ft. 4 in. long, 16 ft. in diameter, each of the four furnaces at each end of the boiler, which are Morison's patent, being 3 ft. 6 in. in diameter. The total grate surface of the boilers is 2,200 sq. ft., and the total heating surface 84,250 sq. ft. Howden's system of forced draught is adopted, the tubes, which are 3 in. diameter, being fitted with retarders. Four of the ballast tanks under the boilers are set apart for carrying about 300 tons of fresh water for feeding the boilers. There are two Blake simplex pumps capable of pumping from the sea, the bilges and the double bottoms, and discharging overboard or into the fire mains. Each of the four boiler sections contains one Blake vertical duplex feed pump, size 12 in. by 8½ in. by 12 in., capable of feeding the boilers of that section. The pumps have connections which enable them to draw water from the sea, fresh water tank, from the boilers and from the bilges, and discharge overboard or into the boilers. Water to the sanitary system is supplied by two Blake vertical simplex pumps, size 12 in. by 12 in. by 16 in., and also by two pumps directly connected to the main engines. The engines are of the six-cylinder four-crank quadruple-expansion type. The cylinders have a common stroke of 1,850 mm. (72.8 in.), and the diameter of the cylinders are as follows: Two high pressure cylinders, 930 mm. (30.6 in.); first intermediate-pressure cylinder, 1,870 mm. (73.6 in.); second intermediate-pressure cylinder, 2,640 mm. (103.9 in.); two low-pressure cylinders, 2,700 mm. (106.3 in.). The two low-pressure cylinders are in the center, with the two high-pressure cylinders over them, and at the forward end in the first intermediate and at the after end the second intermediate. The two first cranks, set opposite each other, have thus the intermediate in the one case, and a high-pressure and low-pressure cylinder in the other, and the after pair of cranks, a high-pressure and low-pressure in the one case, and the intermediate on the other crank. The cylinders are placed close together, the valves being on the outside, and there is a separate valve gear for each cylinder, i.e , six sets for the six cylinders of each engine. The end cylinders have their valve boxes on the outside, and owing to the great diameter there are two spindles. The crank shaft is of nickel steel and is hollow, the outside diameter being 25.2 inches. The propeller shafts are also of nickel steel, while the intermediate shafting is of Siemen Martin's steel. The thrust shafts are the same diameter as the crank shafts, and are placed immediately abaft the engines, each having twelve thrust collars. The thrust blocks are of the ordinary horse-shoe pattern with white metal facings.

The engine frames are steel castings, sixteen in number for each engine, each frame receiving the horizontal thrust of a guide shoe from the cross-heads. There are sixteen guide shoes, all of the same size, for each engine, lined with white metal, four to each cross-head, two for going ahead and two for going astern. The intermediate pistons are fitted with tail rods. The high pressure pistons are fitted with Ramsbottom rings, the intermediate with Buckley's rings, and the low pressure with Peck's patented rings. The valves are worked by ordinary Stephenson double bar links. The high pressure valves obtain their motion from a rocker shaft which is placed upon the low pressure cylinder covers. One end of the rocker arm is attached by means of links to the valve rods, and the other end to a link rod passing between the intermediate and low pressure cylinders, and is attached to the valve gear below. The high pressure cylinders each have one piston valve, and the intermediate pressure cylinders each two piston valves. Each low pressure cylinder has a flat side valve, operated by two valve rods connected to a yoke. All the slide valves, except those of high pressure cylinders, are fitted with balance pistons. The weigh shafts are placed on the outboard side of the engines and are controlled by Brown's combination steam and hydraulic reversing engines, hand-gear being also fitted. Each engine room contains an independent condenser, of circular cross section. The tubes are ¾ in. diameter, the cooling surface for each condenser being 21,300 square feet. There are two independent Blake air pumps of the vertical "twin" type, double acting in the steam ends and with single acting water ends. The steam cylinders are 18 in. diameter, water ends 44 in. diameter, with a common stroke of 24 in. Cooling water to the surface condensers is supplied by two centrifugal pumps, both driven jointly by one compound engine. These pumps can also draw from the bilges. The discharge of the circulating water from the condenser is under the water line. Two double, Weir feed pumps are fitted in each engine room having steam cylinders 12 in. diameter, and water cylinders 8 in. diameter and 12 in. stroke. The inboard feed pumps draw from the hot well and deliver the water into a Weir feed-water heater. The outboard pumps take the water from the heater and delivering the water through a Claussen oil extractor pump into the boiler feed line. Besides these connections the feed pumps can also draw from the fresh water tanks and pump directly into the boilers or overboard. The steam used for heating the feed-water is taken from the second intermediate receiver and the auxiliary exhaust.

Morison's radical type evaporator, capable of delivering about 23,770 gallons in twenty-four hours, is fitted, as well as an auxiliary condenser for use in port. The total power of the engines which drive two four-bladed propellers, each 23 ft. diam., the pitch being adjustable from 33 ft. to 36 ft., is, at 78 revolutions a minute, about the normal full speed 36,000 I. H. P., although on the maiden trip 36,600 I. H. P. was recorded. The owners only expected 35,000 I. H. P., with an average speed of 23 knots. The vessel has thus come up to, and even exceeded their anticipations, as on the second eastward passage the average speed was 23.36 knots, and on the first passage eastward 23 knots. Being a twin-screw steamship, a central longitudinal bulkhead has been adopted, so facilitating the sub-division of the hull as to make the vessel, we understand, practically unsinkable, it being divided into seventeen watertight compartments, besides the double bottom, which is sub-divided into twenty-four tanks. The bulkheads have been constructed in accordance with the regulations of the Germanischer Lloyd and the German Government, and are considered to be sufficently strong to resist the greatest pressure of water they could be subjected to. Not only has the safety of the vessel been considered in the design, but also the comfort of the passengers, for which purpose, amongst other arrangements, bilge keels have been fitted.

The vessel has accommodation for 467 first cabin, 300 second cabin, and 300 third class passengers. There is provided for the first cabin passengers, in addition to the large dining saloon, ladies' parlor, and smoking room, a playroom for children, and a gymnasium and a grill room on the boat deck. The total length of the promenade deck for saloon passengers exceeds 550 feet, and, in addition, the boat deck is at their disposal for promenading. The second cabin accommodations are located aft on the promenade, upper main and lower decks. Besides the spacious dining room on the main deck, and a smoking room on the promenade deck, there is a drawing room on the upper deck. The third class or steerage accommodations includes state rooms, saloon pantries, etc. Great attention has been paid to the sanitary arrangements, the bath-rooms being thirty-three in number, of which sixteen are first class, six for the suites, six second class, one for the captain, two for the engineers, and two for the hospitals. The electric lighting plant consists of five direct connected dynamos, of which three are of 700 amperes and 110 volts. The two wire system is used. There are about 2,000 lamps, in the circuit. The refrigerating machinery is placed between the two propeller shafts, and consists of carbonic acid gas machines. The number of life boats is twenty-six, of which eighteen are metal life boats of the Francis' patent, two are wooden, and six are of the collapsible type. The vessel, besides having the ordinary mechanical telegraphic connections, is fitted with a complete system of telephonic connections, thus enabling the officers on the bridge to be in verbal communication with the engine room force and the steering engine room crew. The Deutschland, as well as the rival steamer of the Norddeutscher Lloyd, Kaiser Wilhelm der Grosse, which she has supplanted, was built by the Stettiner Mischinenbau Actien Gesellschaft "Vulcan," of Stettin, who have on hand another new steamer, to be named the Kaiser Wilhelm II., to excel the performances of the Deutschland, as well as a steamer to equal the Kaiser Wilhelm der Grosse, to be called the Kronprinz Friedrich Wilhelm.

SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR THE MARINE RECORD.)

Ship, ing—Liability of Shipping for Dead Freight—Error of Master.—The owners of a vessel cannot recover dead freight from a shipper on account of his failure to load the full quantity of stone contracted to be carried where there were no facilities for weighing the stone, and the shipper accepted the estimate of the master that the full quantity had been loaded. Barber et al. vs. Vlasto, 104 Fed. Rep. (U. S.) 101.

Liability of Owners for Acts of Master.—Vessel owners cannot be held liable for the amount of an overpayment made by him to miners for a cargo of stone furnished him for loading the vessel because the master overestimated the amount loaded and the shipper accepted his estimate as the basis for making such payment, where it does not appear that the master acted fraudulently. Barber et al. vs. Vlasto, 104 Fed. Rep. (U. S.) 101.

What Constitutes Advances.—An insurance policy for the benefit of whom it may concern, covering advances on inland freights on a cargo, is effective for the protection of a charterer which had obligated itself by contract to advance such freights, although no payment had actually been made thereon when the cargo was lost, the obligation given being in effect an advance for the purpose of the insurance. Neall et al. vs. General Marine Ins. Co., of Dresden, 104 Fed. Rep. (U. S.) 92.

Improper Maneuvers—Tacking in Fog.—A schooner cannot be held in fault for a collision with a steamer in a fog, the primary cause of which was the excesssive speed of the steamer, because half an hour before the collision, and after hearing the whistle of the steamer, she tacked on a course which might bring her across that of the steamer, especially where the tack she was on previously had brought her as near the shore as it was prudent to go. The Columbia, 104 Fed. Rep. (U. S.) 105.

Marine Insurance.—The charterer's agents having, previous to the fire, procured insurance for the benefit of whom it might concern on the inland freights, which it had obligated itself to advance, presumably designed in conformity to the charter provision to inure to the benefit of the vessel when drafts for such freights should be given, the insurer and not the ship, would be primarily as well as ultimately, liable for the loss. Neall et al. vs. General Marine Ins. Co., of Dresden, 104 Fed. Rep. (U. S.) 92.

Lookout.—Where the lookout on a small schooner saw an approaching steamer as soon as she could be seen through the intervening fog, the fact that he was stationed on the after house, instead of at the bow, cannot be held a fault contributing to a collision between two vessels, nor can the fact that men were not stationed ready to make a change in the sails in case of emergency, where a change of course could not have been made in time to avoid collision after the approaching steamer was seen. The Columbia, 104 Fed. Rep. (U. S.) 105.

Evidence of Sounding of Fog Signal.—The distance at which a fog horn can be heard varies so greatly with the direction and the particular conditions of the fog and atmosphere that the fact that the fog signals of a schooner were not heard by an approaching steamer until two or three minutes before a collision, while the whistle of the steamer was heard on board the schooner for half an hour previously, is entitled to little weight in determining whether the horn was sounded at the intervals required by article 15 of the act of August 19, 1890 (26 Stat. 320), which took effect on July 1, 1897 (29 Stat, 893). The Columbia, 104 Fed. Rep. (U. S.) 105.

Collision—Steam and Sail Vessels Crossing—Speed in Fog.—A steamer, which was in the track of coastwise vessels, going at a speed of 13 knots an hour, at which speed she could not be stopped in a less distance than 1,400 feet, in a fog so dense that another vessel could not be seen at a distance of more than one-eighth of a mile, was not going at a moderate speed, within article 16 of the act of August 19, 1890, (26 Stat. 320), which took effect on July 1, 1897 (29 Stat. 983), which provides that "every vessel shall, in a fog, mist, falling snow or heavy rain storm, go at a moderate speed, having careful regard to the existing circumstances and conditions," and must be held in fault for a collision with a schooner which was entitled to the right of way. The Columbia, 104 Fed. Rep. (U. S.) 105.

Inspection of Pipes.—A cargo was injured by sea water which entered the vessel through a hole which had been worn and eaten by corrosion through the iron bottom of a valve chest three-eights of an inch thick. The peculiar liability to corrosion of iron in such place was well known, and while there was evidence on inspection, it was not specific as to manner in which such inspection was made, and it did not appear that the valve chest had ever been removed for examination since it was placed in the ship nine years before, or even that the waive itself had been taken out. Held, that such evidence did not show reasonable careful inspection, such as was incumbent upon the owners under a provision of the bill of lading requiring them to exercise due diligence to make the vessel seaworthy, in order to exempt them from liability. The Friesland, 104 Fed. Rep. (U. S.) 99.

MARINE RECORD

ESTABLISHED 1878.

Published Every Thursday by

THE MARINE RECORD PUBLISHING CO.,

Incorporated.

C. E. RUSKIN, - - - - Manager.
CAPT. JOHN SWAINSON, - - - Editor.

CLEVELAND, Western Reserve Building. CHICAGO, Royal Insurance Building.

SUBSCRIPTION.

One Copy, one year, postage paid, - - $2.00
One Copy, one year, to foreign countries, - - $3.00

Invariably in advance.

ADVERTISING.

Rates given on application.

All communications should be addressed to the Cleveland office,

THE MARINE RECORD PUBLISHING CO.,

Western Reserve Building, Cleveland, O.

Entered at Cleveland Postoffice as second-class mail matter.

No attention is paid to anonymous communications, but the wishes of contributors as to the use of their names will be scrupulously regarded.

CLEVELAND, O., NOVEMBER 15, 1900.

NAVAL YARD EQUIPMENT.

Concerning navy yard shops Admiral Hichborn's report to the Secretary of the Navy says in part: "At the navy yard, Boston, the first work in connection with the installation of the central power plant with electric, pneumatic and hydraulic transmission has been undertaken, and it is hoped that within a comparatively short time this plant will be in complete working order. In connection with this steps have been taken looking to the substitution of electric motors for driving the heavy, separated tools or groups of smaller tools, and many of these are now so driven. Portable pneumatic tools for chipping, calking, riveting, etc., are also being introduced. At the navy yard, New York, very considerable improvements have been made in the foundry, increasing the capacity for rapid handling of both brass and iron castings. The installation of pneumatic piping, permitting the use of portable pneumatic tools, has been completed and is in operation, although compressors necessary to the full development of this system have not yet been installed. The central power, though incomplete has been put into operation, and awaits only certain changes affecting other departments at that yard to be completed. The introduction of a system of fuel oil firing for the bending furnaces and for crucibles, etc., in the foundry has proved an economical and valuable improvement."

ST. LAWRENCE ROUTE INSURANCE RATES.

Lieut. Col. Bond and Capt. Riley, representing the Underwriters' Association, waited on the government officers on Tuesday, to answer a petition from the Montreal Board of Trade, asking for the appointment of a commission to inquire into the question of the alleged discrimination in regard to insurance rates upon the St. Lawrence route. There were present at the interview Sir Wilfrid Laurier, the Hon. R. W. Scott, the Hon. James Sutherland, the Hon. J. I. Tarte, the Hon. H. B. Dobell and Sir Richard Cartwright.

Sir Wilfrid Laurier read the petition of the Montreal Board of Trade, asking for a royal commission and Mr. Bond was heard in reply. He began by pointing out the difficulty of getting insurance for the St. Lawrence route. They had to hunt around for companies to take the necessary risks on account of the small amount that one company would take. He denied that there was any discrimination. There could be no discrimination without having something to compare the route with. It was not possible to compare the route with any other route on account of the condition. He, however, did not want to oppose a commission, but to ask that it be instructed to inquire into everything in connection with the shipping port at Montreal and the trade reaching there. The government will consider the matter.

MERCHANT VESSELS OF THE UNITED STATES.

In compliance with the provisions of the act of Congress approved July 5, 1884, establishing the Bureau of Navigation and directing the Commissioner of Navigation to "annually prepare and publish a list of vessels of the United States belonging to the commercial marine, specifying the official number, signal letters, name, rig, tonnage, home port, and place and date of building of every vessel, distinguishing sailing vessels from such as are propelled by steam or other motive power," the thirty-second annual list of such vessels is herewith submitted, it being the seventeenth annual list prepared by the Bureau of Navigation, and bringing the record of the merchant vessels of the United States down to June 30, 1900.

This volume contains the names of vessels, classed as follows: Sailing vessels, steam vessels, iron and steel vessels, unrigged vessels.

Vessels belonging to the Navy; the Quartermaster's Department, U. S. A.; the Engineer Department, U. S. A.; the Mississippi and Missouri River Commissions, U. S. A.; the Revenue-Cutter Service; the Light-House Establishment; the Coast and Geodetic Survey; the United States Fish Commission, and the United States Marine-Hospital Service.

The information relating to merchant vessels is arranged as follows: The official number of the vessel; the signal letters; the rig; the name; the tonnage (gross and net); the register dimensions (length, breadth and depth); the year of building; the place of building; the home port (where permanent document issues).

Signal letters are assigned to seagoing vessels of the United States, and, upon application made through a collector of customs, they will be granted to yachts, and, in particular cases, to other vessels, if necessary. Such letters are requisite in order to afford the means of recognition by signals at sea.

A supplement has been prepared, designed especially for the use of signal stations and of masters of seagoing vessels classed as follows and having distinguishing signal letters: Merchant vessels of the United States; yachts; vessels belonging to the Navy; the Quartermaster's Department, U. S. A.; the Revenue-Cutter Service; the Light-House Establishment; the Coast and Geodetic Survey, and the Fish Commission.

Respectfully,

EUGENE TYLER CHAMBERLAIN, Commissioner.
HON. LYMAN J. GAGE, Secretary of the Treasury.

FISH CULTURE ON THE LAKES.

Fish culture on the Great Lakes was never more successful than last year. As a result of the year's work over 337,838,000 white fish fry were liberated in the lakes, more than double as many in 1899. This information is contained in the report of the United States Fish Commissioner, which has just been made public. Referring to the work on the lakes, the report says:

On the Great Lakes the whitefish and lake trout work was the most satisfactory ever accomplished. Arrangements were made early in the fall for the collection of lake trout eggs at Charlevoix, Beaver Island, and Manistique, Lake Michigan, near which are located the most important spawning grounds of this species. Over 15,000,000 eggs were collected by November 10, but as only about 10 per cent. were taken prior to November 1, the work would have been a complete failure under the old law, which provided for a rigid close season commencing that date. On Lake Superior the season was very successful, over 12,000,000 being taken. The majority of the fry resulting from the total number collected, 27,000,000, were planted on the spawning grounds of the Great Lakes. The whitefish work was energetically directed on Lake Erie; large numbers of adult fish were penned, as heretofore, at Put-in-Bay, Ohio, and Monroe Piers, Michigan, which yielded 235,000,000 eggs. From the three fisheries on the Detroit river, operated as a result of arrangements made with the state commission, over 34,000 whitefish were penned, which yielded 224,000,000, making a total of 459,000,000 eggs collected at the two stations. As a result of the year's work over 337,838,000 whitefish fry were liberated in the Great Lake, more than double as many as in 1899.

It is stated that Messrs. Harland & Wolff, Belfast, are building a larger steamer than the Oceanic for the White Star Line, which is not intended to be a "record breaker," so far as speed is concerned.

WIRELESS TELEGRAPHY THAT CANNOT BE TAPPED.

One of the drawbacks to the practical use of wireless telegraphy is the fact that there is nothing to prevent anyone who has an instrument of the same kind as that used for a receiver, from taking in the message too, practically tapping the message, just as a telegraph wire might be tapped, but without the necessity of cutting and connecting to the wire. Signor Marconi now claims to have worked out a method of selection by which only the station that is intended to receive the message will know that a message is being sent. Professor Fleming, who has taken a great interest in the development of Marconi's work, has made a series of tests upon an apparatus working between St. Catherine's, in the Isle of Wight, and Poole, in Dorset, there being a distance of thirty miles between the two places. Two of the specially tuned apparatus were fixed at each place and the apparatus were placed in all kinds of positions with respect to each other. When a message was sent by one apparatus it only affected its own particular apparatus at the other station, no matter how the two were placed at either station. This is very well as far as it goes, but it is evident that its application is strictly limited to the number of possible tunes that can be played, or rather to the number of individual notes that can be formed in the electric scale, and it can hardly be made applicable to ordinary telegraphic or telephonic work, where the wires in use number often a thousand at any individual station.

WATER TUBE BOILERS IN THE BRITISH NAVY.

With all the criticism that has been heaped on the water-tube boilers used in ships of the British Navy, and on those responsible for their installation, it becomes interesting and proper that something should be heard of the other side of the question, and it is, therefore, worth while to read the memorandum on the subject, submitted by the British Admiralty a few months ago to both Houses of Parliament. The document is full of interest, and shows how urgent the necessity is of making engineering knowledge of paramount importance in the personnel of a modern navy. In summing up, the report concludes as follows: Surprise is naturally felt by those who are not fully conversant with the whole of the circumstances that difficulties connected with the management of water-tube boilers and high-pressure machinery should take so long to overcome, and they are apt to assume that because they are not all removed in the three or four years that have elapsed since water-tube boilers were introduced into the British Navy, they must be insuperable. A little consideration will show that up to the present, and for some to come, the engine-room staff of every newly-commissioned water-tube boiler ship must be largely composed of those who have had no previous experience with this type of machinery, as the number of water-tube boiler ships in commission has up to the present borne so small a proportion to the total number of ships for which crews are provided. The rate at which crews can be trained will increase rapidly as more water-tube boiler ships become available, and as special arrangements for training engineers, engine-room artificers and stokers, augment the number of men with experience of these boilers.—Cassier's Magazine.

40-KNOT YACHT LAUNCHED ON THE HUDSON.

In the yacht Arrow, launched last week at Nyack, N. Y., the builders expect to attain a speed of 40 knots or 46 miles per hour, which will make her the fastest boat in the world, considerably exceeding the 37.6 knot turbine-propelled British torpedo boat Viper. The Arrow is 130 ft. 4 in. long, 12 ft. 6 in. beam, and has a normal draft of 3 ft. 6 in., with a draft under screws of 4 ft. 6 in. There are two sets of quadruple expansion engines, whose cylinders run 11, 17, 24 and 32 ins., with a stroke of 15 ins. The engines work at a steam pressure of from 350 to 400 lbs. and at 540 revolutions per minute (a piston speed of 1,500 ft. per min.) with a pressure of 350 lbs. at the engine will develop about 4,000 I. H. P. Aluminum has been extensively used in the hull construction. There are two Mosher water tube boilers which carry a steam pressure of 400 to 440 lbs. The grate surface of the boilers is 120 sq. ft. and the heating surface 5,540 sq. ft. The horse-power of the engines and the last particulars are of interest, since but slightly exceeding the proportions of some of our modern locomotives, and as the forced draft is used on the vessel a comparison is not unjust. The vessel will have a capacity for 30 tons of coal, and every detail of equipment fittings and general appointment has had the most careful attention devoted to it.

NOVEL WRECK-RAISING.

A correspondent of the Canadian Engineer writes as follows: My attention is called to a particular feature in the salvage of wreckage on our Canadian coasts, by a rehearsal at page 197, of the September number of the Scientific American, of how the battleship Oregon, wrecked by grounding on a sunken rock in the Gulf of Petcheli, on the confines of China, was raised and brought to dock for repairs. One of two of the engravings explanatory of the article purports to be a "view from the port and underneath, showing injury to vessel's bottom, July 25th, 1900, with a copy of recital by telegram from Yure, of August 29, of a full detail of the injury done to the ship's sheathing and framework," while the second engraving purports to be a view of "temporary patches put on by diver over injuries between frames 19 and 24."

Such has been to date one of the ordinary modes of raising sunken vessels, to wit: the patching of them by canvas and otherwise, or by sails drawn under them and attached by ropes running around and under the hull of the vessel and hauled in taut on deck. The vessel was then pumped of its water, or of so much of it as would allow it to become buoyant, thus enabling it to hold its own until towed into port, and docked for repairs.

Now, sir, a steamer called the Scottish King was wrecked September, 1898, on the coast of New Foundland, and so irretrievably damaged that all ordinary modes of patching, pumping and the like had failed to do the needful; when, after the vessel had been there for 19 months, and finally given up and abandoned as a total wreck, Messrs. McArthur, of Montreal, proprietors of the vessel, on recommendation of Wm. Leslie, of the Collins' Bay Rafting Co., applied to Capt. E. Bernier—the same man who has been before the public for some three years past as a would-be discoverer of the North Pole, and whose fertility of expedient in this, the salvage of the Scottish King, is an additional evidence of his fitness for such an undertaking.

Capt. Bernier, nothing daunted by the failure of those who had tried their hand at the sunken vessel, and though it lay stranded in 23 feet of water, and as already stated, had, after 19 months of unavailing efforts, been left to the mercy of the inclement coast it shoaled on, took her in hand, cemented down the lower deck air-tight over the hull and stayed it, and instead of attempting to patch her and pump her out, he pumped air into her beneath the sealed or air-tight deck, of which, of course, all the hatchways had also been secured and sealed with cement and asphalt, and thus forced the water out of her, and without any attempt at patching or stopping up the holes in her bottom, brought her safe to Quebec, docked her there, repaired her within a couple of weeks, left with her on the 29th inst. for New Liverpool, where he took in a cargo of deals and proceeded to Montreal where the vessel is, at this writing, completing her cargo, wherewith to sail for London about the middle of October, there to be sold at public auction for any profit to be thereby derived by proprietors and underwriters, as, when a vessel has been wrecked and recouped and sold, it is usual to give her a new name unsuggestive of the mishap.

The Scottish King is 364 feet in length, and of some 3,200 tons burden, and it is eminently suggestive to the trade to be thus made aware of how, in the future, stranded or wrecked vessels may be saved when there is enough of the hull remaining below deck to confine the compressed air necessary to keep them sufficiently free of water to make them buoyant, and at so cheap a rate; this vessel having cost some $240,000 in its construction, while its total salvage and repairs do not exceed $40,000, or more than 1/6 or 16⅓ per cent. of its first cost, to start it again as new.

THE SUBMARINE TELEGRAPH SYSTEM OF THE WORLD.

The submarine telegraph systems of the world number over 1,500, with an aggregate length of wire of more than 170,000 miles, or about equal to six times the circumference of the earth. The total cost of maintaining this great enterprise is estimated at $250,000,000 annually, while the number of messages transmitted beneath the sea is about 6,000,000 per year. In the last fifty years and since the practicability of submarine telegraphy has been demonstrated, electric wires have been laid under every ocean except the Pacific, and there are two lines projected under the latter. More than a score of lines have been laid across the Atlantic, and thirteen of them are now in successful operation between the United States and Europe. There are three lines between South America and African and South European coast lines. The Mediterranean sea is crossed and recrossed in its entire length and breadth by numerous cable lines. Lines connect the Far East with Europe and America by way of the Indian ocean, the Red and the Mediterranean sea. The Gulf of Mexico and the Caribbean sea is traversed in all directions by lines which bring its islands and colonies into speaking relations with each other and with South America, Central America, the United States, Europe, Africa, and in fact the whole world. Along the eastern coast of Asia cables are laid from port to port and from island to island. South America is skirted with cables along its entire coast, except in the extreme southern portion where the communication is by land. There is a cable line from Australia to New Zealand and another from the New Caledonia islands to Australia. The developments in the laying, constructing and operating of submarine cables and their availability for public use have kept pace with their general extension throughout the world. From a mere gutta percha wire the submarine conductor of electricity has developed into a great cable having a central copper core surrounded and covered by many layers of non-conducting material, and protected by steel wire wound spirally about it and by water proof and insect proof wrappings. The effect of the submarine cables in the transmission of thoughts and words from one end of the world to the other is shown in the rapid development of international commerce since the system was inaugurated. The first successful cable line between the United States and Europe was put in operation in 1866. With a direct cable communication across the Pacific ocean and direct water communication through the Nicaragua canal and an increase in the number and capacity of the American steamships, it is not improper nor visionary to suppose that a material addition may be obtained by the United States in the commerce and carrying trade of the world.

RIPARIAN RIGHTS.

In United States Supreme Court on Tuesday Justice Harlan rendered the opinion of the court in the case of Gilmore S. Scranton vs. Eben S. Wheeler, coming to the court on writ of error from the supreme court of the state of Michigan. The case involved the riparian rights of owners on navigable rivers to damages for loss of accessibility to such streams caused by government improvements made for the purpose of improving navigation. A pier erected at St. Mary's Falls, Mich., cut off Scranton's access to the river. The Michigan court decided against Scranton, and the opinion confirmed that decision.

The opinion held that the broad power with which Congress is invested is not burdened with the condition that a riparian owner, whose land borders upon a navigable water of the United States, shall be compensated for his right of access to the navigable part of such river whenever such right ceases to be of value solely in consequence of the improvement of navigation by piers that rest upon submerged lands away from the shore line.

CAR FERRY AND ICE BREAKER.

The Swedish State Railways have recently placed a steam ferry at Copenhagen on trial for the purpose of carrying on the trade between that port and Malmo. The vessel has been constructed at Malmo and cost $250,000. She is a screw steamer 268 ft. in length by 52½ ft. beam, and is capable of steaming 13¼ knots per hour. The vessel is built with an ice breaker for winter service. The displacement of the boat when loaded with 18 railway cars is 1600 tons, while she has accommodation for 900 passengers. There is an extensive deck, 150 ft. by 46 ft. broad, amidships. The vessel is illuminated with electric light and is well appointed in all particulars.

ELASTIC SEAM COMPOSITION.

A leaky seam is abhorrent to all who earn their living afloat. Cole & Kuhls, Brooklyn, N. Y., manufacture a composition that will not admit leakage. The principal steamship lines as well as a large number of the best yachts use the elastic seam paint.

THE proposition of Engineer-in-Chief Melville for the construction of a floating machine shop for the use of the squadrons in various parts of the world is receiving the earnest attention it deserves, and it is not improbable that a definite move in this direction will be inaugurated by Secretary Long in his report to the President.

A WIND VANE.

A new apparatus for recording eight directions of the wind by means of two styles has been adopted by the Agricultural College of Berlin.—Zeitschrift fur Instrumentenkunde. A current distributor follows the movement of the vane. This distributor consists of a platinum sector of 135 degrees, turning about a vertical axis over four platinum contacts, connected with four electro-magnets. The axis is joined to the one pole of an accumulator cell. The electro-magnets are arranged in two pairs, corresponding to the wind directions N-S, E-W. In front of each of the pairs swings a pendulum, provided with an oil damper. A deflection in the one pendulum to the left means north wind, to the right south wind; the deflections of the other pair indicate east and west wind, and the combination of the two simultaneous movements gives the intermediate directions. The pens are attached to the ends of the pendulums and draw parallel curves on a paper tape, which is being pulled downwards by a small weight. If a continuous record is desired, the common return from the four electro-magnets is taken directly back to the other pole of the cell. In the Berlin apparatus a relay is interposed, the circuit for which is, by means of clockwork, energised every three minutes. Twenty wind records are thus obtained per hour. The apparatus works with very small currents of 0.01 ampere, and the current intensity might still further be diminished, in order to spare the contacts, by winding the coils of the electro-magnet with finer wire. The current distributor does not retard the movements of the vane to any appreciable degree.

COAL CONSUMPTION OF TURBINE VESSELS.

Charles A. Parsons, managing director of the Turbinia Works, Wallsend-on-Tyne, writing to the London Times of the recent trials of H. M. S. Viper, which is the first torpedo boat destroyer to be fitted with steam turbine propelling machinery, and of which he was the inventor, calls attention to the fact that all previous records were broken at this trial. At a preliminary but official full-power contractor's trial the maximum mean speed of 36.858 knots was reached. On a three hours' coal consumption trial, with air pressure limited to 3½ inches, a mean speed of 33.838 knots was maintained with about four-fifths of the maximum power, the coal consumption being at the rate of 2.49 pounds per indicated horse-power per hour. On the usual twelve hours' coal consumption trial at cruising speed of 15 knots the ascertained coal consumption of the Viper was at the mean rate of 27 hundred weight per hour. H. M. S. Cobra, the second fastest ship afloat, with the same sized turbine engines and similar in every respect to the Viper, but loaded to service conditions and having a displacement of 442 tons, or about 60 tons greater than the Viper, consumed on her official 15 knot trial 24.58 hundred weight per hour. In her case the port engines only were used, the starboard engines being dragged around by the propellers, and it is probable that the Viper, with her less displacement, would when using one set of engines only, burn less coal than the Cobra.

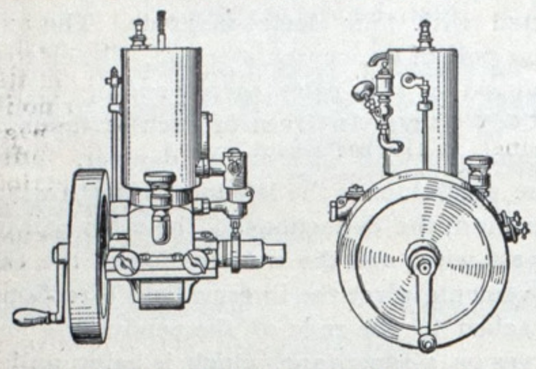
At the contract speed of 31 knot the Viper's turbine engines are working at only two-thirds full power, and are necessarily less economical than if they had been smaller and designed for the power required for thirty-two knots. Comparing the coal consumption of the turbine engines of the Viper and the reciprocating engines of H. M. S. Albatross, Mr. Parsons says: "On the other hand we have the larger engines, greater propeller blade area, heavier underwater fittings, greater hull resistance, powerful, durable boilers of simple construction without external adjuncts for attaining the highest economy on trial, the vessel being capable of a speed of five knots in excess of any vessel propelled by reciprocating engines.

"On the other hand, we have a vessel whose engines and propellers are capable of developing only about two-thirds of the horse-power of the other, designed for a much lower speed—in fact, about that at which the comparison is taken and having boilers of noted efficiency in coal, assisted by somewhat complex additions for further increasing the economy. There cannot be the slightest doubt that in every class of vessels (excepting only very small or slow vessels) it will be found that the turbine system of propulsion will give superior results over the reciprocating engine as regards coal consumption.

"In the Viper in spite of losses of power at lower speeds incured in order to reach the record speeds attained (speeds only attainable by turbine machinery), without any special effort to attain economy, even so, her coal consumption per horse-power realized is very little in excess of the best, and less than that of many of the 30 knot destroyers."

Truscott

VAPOR MARINE MOTORS.
HIGH GRADE PLEASURE CRAFT.



TRUSCOTT BOAT MFG. CO.
ST. JOSEPH, MICH.

SEND 5 STAMPS FOR CATALOG.

Pintsch Gas Lighted Buoys.

Adopted by the English, German, French, Russian, Italian and United States Light-House Departments for channel and harbor lighting. Over 1,000 gas buoys and gas beacons in service.

Burn Continuously

from 80 to 365 days and nights without attention, and can be seen a distance of six miles. . . . . .

Controlled by

THE SAFETY CAR HEATING AND LIGHTING CO.
160 Broadway, New York City.

BAINES BROS.
PROVISION MERCHANTS AND SHIPPERS OF
BEEF, MUTTON, PORK & POULTRY
LARD, SAUSAGE, ETC
VESSEL SUPPLIES A SPECIALTY
43, 44 & 45 ELK STREET MARKET
BUFFALO, N.Y.
PHONE SENECA 346

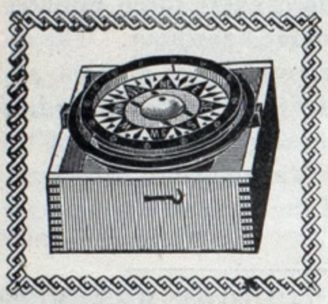
Cleveland Telephone, Glen. 87 F.

CHAS. R. DITTRICK,

SUBMARINE DIVER

Day or Night Calls Answered Promptly.

21 Everton Street, GLENVILLE, O.



THE Bliss LIQUID (Spirit) COMPASS

Made in seven sizes by JOHN BLISS & CO., 128 Front Street, New York, is finely finished sensitive, accurate and durable. Moves quickly and is extremely steady. Is the best Liquid Compass ever made in this or any country. For sale by ship chandlers generally.

EARLY NAVIGATION OF THE ST. LAWRENCE.

Jos. Reynar, of Three Rivers, Que., who has made a study of the question of having the St. Lawrence kept open for a couple of weeks later every season, and opened a month earlier every spring, up to the port of Montreal, writes to Railway and Shipping World, Toronto, as follows: "Referring to my article in your July number, I have much pleasure in sending you a pamphlet giving detailed descriptions of some strong ice-breaking steamers built for Russia by Sir Wm. Armstrong, Whitworth & Co., of Newcastle-on-Tyne. I hope that many Canadians, of the progressive type, will call at your office and make a study of the question I am placing before the people of Canada, which is of such vital importance to our commerce, and study carefully the results already obtained in many Russian ports.

"I recommend that the Canadian Government should, without any delay, order the construction of a strong ice-breaking steamer, something of the Sampo type, viz., length about 250 ft., breadth about 50 ft., depth about 22 ft. A vessel of these dimensions should not draw over 14 feet, with one week's coal supply on board, and with twin screws and the best engines and boilers in use, should clear the St. Lawrence of ice between Quebec and Montreal early in April every year.

"In my former article I explained how our ice-breaking steamer would be of great service in summer, by having her stationed at Sydney, N. S., ready to start at an hour's notice by orders from Ottawa, to assist any stranded vessel on Anticosti, the coast of Labrador, or elsewhere. We have lost many vessels for want of such a steamer. Last year she would have possibly been able to save the Scotsman, or at least a portion of her cargo. It is about time for the Dominion Government to wake up and take prompt and definite action in the matter. Russia has taken the lead, and we should not be too far behind."

THE STOKER'S LUGGAGE.

An amusing story is told concerning stokers on board Atlantic liners. One of the "cranks" was on the point of sailing, when it was discovered a stoker was missing. As there was no time to send ashore for a substitute, the chief engineer "begged, borrowed or stole" one from a tug lying alongside. The man was nothing loth to change ships, but he made it a condition that he should first be allowed to go ashore for his luggage. At the mention of the word from the grimy figure before him, clad chiefly in a vest, trousers and dirt, the engineer sniffed contemptuously. "No time," he snapped, "you'll be fixed up in the fo'c'stle." But the man was obdurate, and so gained his point. A few minutes before the ship sailed, the new hand dashed up the gangway, carrying his all important "luggage." It was a tin of tobacco and a couple of clay pipes.

NOTES.

THE Bethlehem Steel Company of South Bethlehem, Pa., have again opened an office in St. Louis, and will be represented at 930 N. Main street., that city, by Mr. S. E. Freeman.

MR. J. PEROUCHE, writing in the "Revue Scientique," states that modern methods of observation enable astronomers to determine latitudes correct to a hundredth of a second of arc. One hundredth of a second of arc is, it may be added, equivalent to 1 ft. on the earth's surface measured at sea level. The fact has thus been established that latitude is subject to a cynical change, the poles of the earth oscillating about a mean position. M. Perouche suggests that observations of this character may afford a means of detecting small distortions in the crust of the earth due to geological movements.

THE hooks made by the Standard Automatic Releasing Hook Co., of 17 State St., New York, are now used on vessels in all parts of the world. Testimonials concerning its good merits are being received constantly. Here is a sample: "This is to certify that one of the quarter boats on the steamer City of Detroit is equipped with the Standard Automatic Releasing Hook. I have seen its practical working and consider it the most reliable device of its kind ever placed before the maritime public. It fulfills all the requirements, both in releasing and hooking on, and from its many testimonials from men of large practical experience, I see no reason why it should not be universally adopted by the maritime public at large. Signed: Alex. J. McKay, commanding steamer City of Detroit, of the D. & C. Steam Navigation Co.

THE Roberts Safety Water Tube Boiler Co., of New York City and Red Bank, N. J., have just paid their tenth annual dividend of 10% thus paying 100% on their investment to the original stockholders. This company is now building a 400 horse-power boiler for the steam yacht Admiral two boilers of 500 horse-power for one new vessel being constructed by the Craig Ship Building Co., of Toledo, and four similar boilers for another vessel—also their eighth boiler for the United States Revenue Cutter Service, besides many other orders. The year 1900 was the best business year since the formation of the company and prospective orders for 1901 make it appear that even the year 1900 will be eclipsed. The fourth extension of the Roberts Boilers Works is now planned, after which they expect to turn out an average of about one boiler per day.

THE Russian cruiser Variag, which made such a remarkable showing on her recent trial, has her pipes and other steam surfaces covered by the Asbestos Manufacturing Co., of Philadelphia. Regarding the result achieved, Edwin S. Cramp said: "There is no doubt that the insulation of the Varaig's steampipes and boilers contributed largely to her success as a flyer and made her the speediest cruiser in the world. The material used is superior to anything we have ever tried and we are highly pleased with the result. In the future no vessel will be allowed to leave our yards without the boilers and pipes being covered with this material." So satisfied were the Navy Department officials with this new covering that several vessels at League Island have been protected by this covering and are expected to show an increase of speed when the repairs are completed on them.

THE Roberts Safety Water Tube Boiler Co., of New York City and Red Bank, N. J., have just paid their tenth annual dividend of 10 per cent. thus paying 100 per cent. on their investment to the original stockholders. This company is now building a 400 horse-power boiler for the steam yacht Admiral, two boilers of 500 horse-power each for a new steamer being constructed by the Craig Ship Building Co., of Toledo, O., and four similar boilers for another vessel—also eight boilers for the United States Revenue Cutter Service, besides many other orders. The year 1900 was the best business year since the formation of the company and prospective orders for 1901 make it appear that even the year 1900 will be eclipsed. The fourth extension of the Roberts Boiler Works is now being planned, after which they expect to turn out an average of about one boiler per day.

THE Trustees of the Radcliffe Observatory, at Oxford, England, have given an order for the construction of a telescope, which, it is said, will be one of the finest in the world. Since the beginning of the year workmen have been engaged in the erection of a tower for the accommodation of the huge instrument, and the builders' part of the contract is well nigh finished. The building, which is circular, is 35 ft. in diameter. The wall rises to a height of 34 ft. At about two-thirds of this height a bold cornice of stone and red brick is introduced, and above this eight elliptic windows are placed, with keyed dressing of rubbed red brick. These form the chief ornamental feature of the tower, and are surmounted by a wide, hard stone cornice, upon which is bolted the iron sole-plate for the great hollow dome, which will rise around and above the telescope. Within the building is the massive brick pier upon which the cast iron base of the telescope will stand. The pier itself rests on a solid mass of concrete, 13 ft. by 9 ft. by 5 ft. high, which was placed at a depth of 17 ft. below the surface of the ground. The weight of this concrete block is estimated at about thirty tons. The hollow dome which surmounts the tower is nearly spherical in shape, and its ribs are of steel. These are at the present time being covered in with papier-mache, which forms the protecting roof. The whole dome revolves easily on wheels, and rises to a height of 53 ft. above the ground. The engineer's work has been performed by Sir Howard Grubb, F. R. S., of Dublin, who has received orders to construct the immense double telescope, and a floor rising to any desired height by hydraulic lift.

NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 11TH DIST.,
DETROIT, MICH., November 9, 1900.

Notice is hereby given that the wreck of the schooner Leader, which was sunk off the northeast end of Belle Isle, Detroit river, Mich., having been removed, the red and black horizontal striped buoy which marked this wreck has been discontinued.

Notice is hereby given that on November 13, 1900, the light-house tender Marigold will leave Detroit for the purpose of taking up all the buoys in Lake Huron. These buoys will be taken up during the present week and will be replaced by winter markers.

The buoys in Lake St. Clair, St. Clair river and St. Mary's river will be left in place as long as the ice in these waters will permit.

By order of the Light-House Board:

J. C. WILSON, Commander, U. S. N.
Inspector 11th District.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., November 10, 1900.

CLEVELAND WEST PIER LIGHT STATION.—Notice is hereby given that on or about November 15, 1900, the sixth order, fixed white light will be discontinued on the outer end of the old west pier at the entrance to the Cuyahoga river, Cleveland harbor.

On the same date a sixth order, fixed white light will be established in the new structure on the outer end of the new west pier, about 65 feet to westward of the old west pier now being removed.

The focal plane of the light will be 52⅓ feet above mean lake level. The light will illuminate 324° of the horizon, the dark sector to lie in the direction of the city, between N. 10° 9′ W. (N. ⅞ W.) and 25° 51′ E. (N. N. E. $\frac{5}{16}$ E.), true.

The new structure is a cylindrical tower, covered with corrugated iron, painted white, surmounted by a ten-sided lantern surrounded by a circular gallery.

Should the new structure not be sufficiently advanced to receive the sixth order light on the date named, a lens-lantern light will be temporarily shown from the structure.

GENESEE RANGE FRONT LIGHT STATION.—Notice is hereby given that, on or about November 15, 1900, the size of the steam fog-whistle will be increased from 6 to 10 inches at this station, on the outer end of the west pier at the entrance to Charlotte harber, mouth of Genesee river, southerly side of Lake Ontario.

The characteristic of the signal will not be changed.

SANDUSKY BAY OUTER RANGE LIGHT STATION.—Notice is hereby given that on the opening of navigation in 1901, or as soon thereafter as practicable, the color of the keeper's dwelling and the two towers at this station will be changed from yellowish drab to white, and both foundation cribs will be painted red.

The station is located in the easterly end of Sandusky Bay and on the westerly prolongation of the axis of the improved channel from Lake Erie into the bay.

LAKE MICHIGAN, GREEN BAY, ETC.

LIGHTS AND FOG SIGNALS DISCONTINUED DURING WINTER.—Notice is hereby given that during the winter of 1900-1901, lights and fog signals will be discontinued in these waters as follows:

At all stations on the easterly side of Lake Michigan to the northward of South Manitou light-station, and on the westerly side of the lake at all stations to the northward of Sturgeon Bay canal light-station, excepting at Cana Island, Porte des Morts (Pilot Island), Plum Island and Pottawatomie light-stations; at all stations in Green Bay, excepting Chambers Island, Menominee pierhead, Green Island and Sherwood Point light-stations.

All coast lights and fog signals at stations to the southward of and including South Manitou light-station, and on the westerly side of the lake to the southward of and including Sturgeon Bay canal light-station, will be maintained throughout the winter. All harbor lights in the lake, south of the stations named, will be exhibited when vessels can enter the harbors.

By order of the Light-House Board.

FRANCIS J. HIGGINSON,
Rear Admiral, U. S. Navy, Chairman.

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	2,890,000	382,000	655,000	141,000	963,000
Chicago	13,084,000	1,001,000	3,438,000	589,000	71,000
Detroit	500,000	45,000	141,000	64,000	19,000
Duluth	7,157,000	70,000	503,000	159,000	956,000
Fort William, Ont.	986,000	.....	.....	.....	.....
Milwaukee	846,000	41,000	410,000	5,000	38,000
Port Arthur, Ont.	100,000	.....	.....	.....	.....
Toledo	1,321,000	473,000	1,285,000	28,000	2,000
Toronto	97,000	.....	2,000	.....	155,000
On Canals	33,000	224,000	185,000	.....	370,000
On Lakes	918,000	1,349,000	418,000	.....	247,000
On Miss. River	48,000	110,000	21,000	.....	.....
Grand Total	60,703,000	6,785,000	12,842,000	1,186,000	3,509,000
Corresponding Date, 1899	52,562,000	11,909,000	6,706,000	1,251,000	2,641,000
Increase	671,000	.....	.....	86,000	.....
Decrease	.....	1,198,000	144,000	.....	102,000

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

MARINE PATENTS.

Patents issued November 6, 1900. Reported especially for the MARINE RECORD. We furnish complete copies of patents at the rate of 10 cents each.

660,646. Art of cleaning and painting or treating surfaces submerged in water. David Mason, New York city.

660,658. Buoying means for water craft. John M. Richens, Fitzgerald, Ga.

660,802. Telephonic apparatus for use on vessels. Mario R. D'Asar, Genoa, Italy.

661,100. Ship's drag. Chas. E. Delanoy, New York City.

661,246. Boat. George F. Holloway, Oak Park, Ill.

661,303. Air injecting device for lessening skin friction of vessels. John S. Briggs, Los Angeles, Cal.

661,410. Life-buoy. Gustaf A. Lindberg, Malm, Russia.

AN account is given by "Le Yacht" of experiments conducted at Havre with the life-boat Admiral Cloue, designed to test a new system of calming a stormy sea by pouring oil upon it. The motive power is supplied by a bottle of carbonic acid in the centre of the boat, which develops sufficient gas to project the oil by its pressure through a dozen different apertures outside the life-boat. The results are said to have been absolutely conclusive, the sea being calmed in a very remarkable manner.

EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., report the condition of the eastern freight market as follows:

As anticipated in our last, grain freights have shown some slight improvement, especially for this month's loading, as will be noticed. The volume of business, however, has been small, owing principally to the higher figures demanded by owners; the elections also no doubt having had some effect upon the prevailing conditions. The cotton situation still continues in a depressed state, and there is little or no inclination on part of charterers to take up further tonnage. Time charter business is also restricted, owing to the difference between charterers' and owners' ideas; for short periods there is some little enquiry on the basis of about 6 s. on dead weight capacity, but for longer terms of charter, owners have to concede a reduction in order to effect business. There is no change to report in timber and coal freights, the enquiry being of a very limited nature.

As foreshadowed in our last report, rates for long voyages have weakened further and in consequence, several charters in this direction have been accomplished. Freights for case oil to the East have undergone no change, but nothing has been done in this line; otherwise we have nothing of particular interest to mention.

AN INQUIRY.

TREASURY DEPARTMENT, BUREAU OF NAVIGATION,
WASHINGTON, D. C., November 9, 1900.

MR. A. C. WETMORE,
Secretary American Ship Building Co.,
Cleveland, O.

This office is in receipt of your letter dated the 7th, inst., submitting a hypothetical case as follows:

"A vessel is built, say here in Cleveland, set up on the stocks in the usual way, the hull fully completed excepting for a space of, say two plates in or near the centre—these plates during the time that they are on the stocks, would simply be bolted. A bulkhead would be constructed on either side of these spaces, and when the hull was fully completed in other respects, these plates would be removed, stored in one end of the ship, and the hull launched in two pieces. The hull would be sufficiently completed on the stocks to admit of admeasurement, although probably the deduction could not be made until after the two parts had again been put together, and the houses put on. We would then propose that the part of the hull containing the machinery would tow the other part through the canals to, say Montreal or Quebec, where the two sections would be joined together and continue to the coast."

In reply to your inquiry whether such a vessel could be enrolled as an American bottom, and hail from an American port, and whether she would be liable to customs duties, this office has to state that if such a case should arise, the dispatch of the vessel to the Atlantic coast without penalties, or disabilities other than those imposed by the nature of the case, would undoubtedly be authorized on the receipt by this office of proper evidence satisfactorily establishing the facts. It would probably be necessary to have evidence forwarded from the office of the Collector of Customs of the district where the voyage commenced, and also of the Collector where the voyage terminated. At the latter port proceedings could be taken for the granting of documents on compliance with the regulations. Enrollment would not issue at the port of departure. It is not understood that duties would accrue.

As advised at present, the Bureau would endeavor in every proper way to facilitate such a transaction.

Respectfully,
E. T. CHAMBERLAIN, Commissioner.

S. F. HODGE & CO.
MARINE ENGINES,
PROPELLER WHEELS,
DECK HOISTERS,
MARINE REPAIRS.
312 ATWATER STREET,
DETROIT, MICH.

Chas. E. & W. F. Peck,
58 William Street, New York City. Royal Insurance Building, Chicago, Ill.
C. T. BOWRING & CO.
5 and 6 Billiter Avenue, E. C., - London, England.

Insurance
BROWN & CO., - - - 202 Main Street, Buffalo, N. Y.
A. A. & B. W. PARKER, 15 Atwater St., W. Detroit, Mich.
J. G. KEITH & CO., - 138 Rialto Building, Chicago, Ill.
LA SALLE & CO., Board of Trade Building, Duluth, Minn.
Are prepared to make rates on all classes of Marine Insurance on the Great Lakes, both CARGOES and HULLS.

Marine Valve Oil,
Eldorado Engine Oil,
Victor Signal,
Arctic Cup Greases,
Renown Engine Oil,
Atlantic Red Engine Oil,
Mineral Seal Oil,
are trade mark brands manufactured by the
Standard Oil Company
and found on sale at all lake ports.
The best goods are most economical. Remember the names.

Steamboat Fuel at Chicago.

THE Y&L

YOUGHIOGHENY and LEHIGH COAL CO.

J. T. CONNERY, Manager. ARCHIE J. HITCHCOCK, Dock Supt.

MAIN OFFICE: 1238-1242 Chicago Stock Exchange Building.

Long Distance Telephone, Main 5049. 110 LA SALLE STREET.

FUEL DOCKS: No. 1, Michigan Slip and Basin. 'Phone 3046, Main.
No. 2, N. Halstead St. Bridge. 'Phone 773, North.

FUEL LIGHTER: Equipped with 125 2-ton Buckets for Fueling anywhere in Harbor

WE PRODUCE OUR YOUGHIOGHENY COAL AND GUARANTEE QUALITY.

PICKANDS, MATHER & CO.

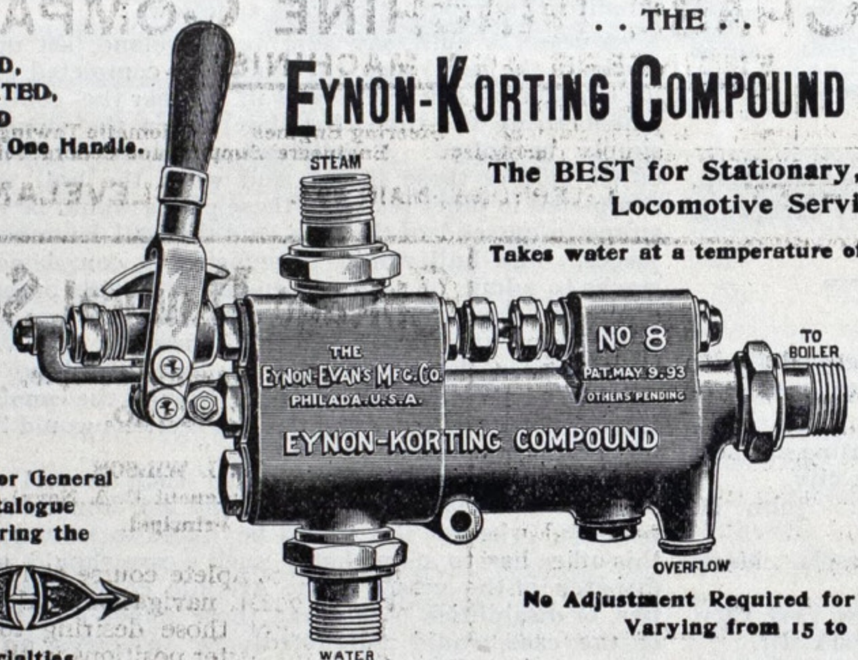
PIG IRON.
IRON ORE AND COAL.

FUEL LIGHTERS AT BUFFALO, ERIE, ASHTABULA, AND CLEVELAND.

At DETOUR, MICH., A FUEL DOCK equipped with Shute capacity of 600 Tons.
Best Quality PITTSBURGH COAL furnished at any time during Day or Night.

WESTERN RESERVE BUILDING, CLEVELAND, O.

STARTED, REGULATED, STOPPED With One Handle.



Send for General Catalogue covering the Specialties.

. . THE . . EYNON-KORTING COMPOUND INJECTOR.

The BEST for Stationary, Marine or Locomotive Service.

Takes water at a temperature of 150 degrees.

Will Lift Water 24 Feet.

Has a Greater Range than any other Injector.

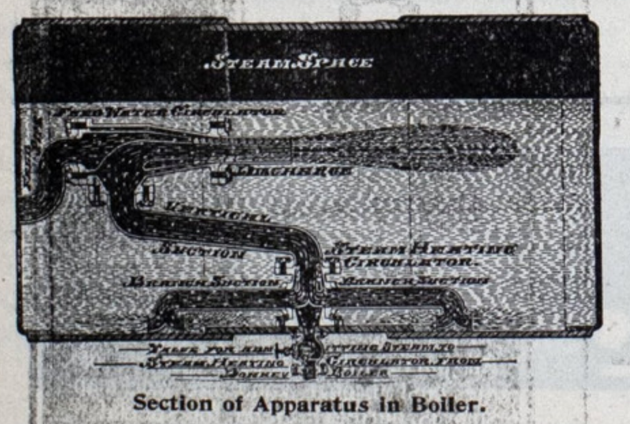
No Adjustment Required for Steam Pressures Varying from 15 to 300 Lbs.

THE EYNON-EVANS MFG. CO.

15th and Clearfield Streets,
PHILADELPHIA, U. S. A.

New York Office, 107 Liberty Street
Boston Office, 42 Oliver Street.

For Heating and Circulating the Water in Steam Boilers.



Section of Apparatus in Boiler.

THE EQUILIBRIUM CIRCULATOR AND STEAM HEATING ATTACHMENT

Saves coal or increases steaming capacity 5% to 15%.

Prevents foaming or priming or pitting.

Reduces repairs. Saves leaks.

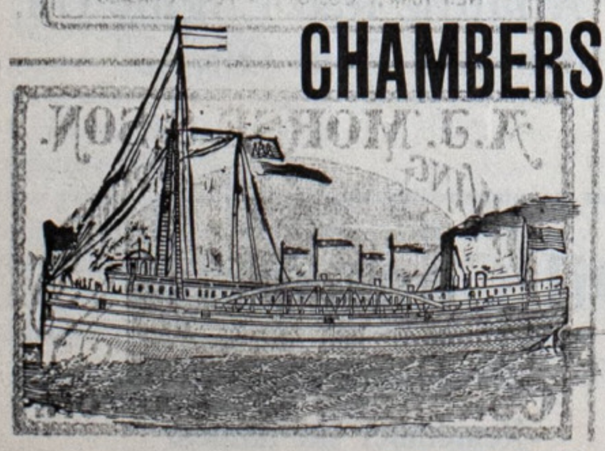
Prolongs life of boiler.

106 IN USE. 50 ORDERED.

H. BLOOMSBURG & CO.

112 35th St. Newport News, Va.

G. G. JACOBS, PRESIDENT. H. G. THOMPSON, SEC'Y-TREAS.
J. J. CHAMBERS, MGR. AND SUPT.



CHAMBERS, THOMPSON & CO.,

DEALERS IN

HARD AND SOFT COAL.

Steamboat Fuel A Specialty.

21 Main Street. Tel. Main 523 F.

CLEVELAND, O.

M. A. HANNA & CO.

COAL, IRON ORE AND PIG IRON.

Steamboat Fuel at Ashtabula.

Large Supplies of Best Quality.

Fuel scow with elevators and discharging spouts. Storage of 650 tons. Discharges 150 tons an hour into steamers while unloading cargo.

MINERS AND SHIPPERS.

LIGHTER carrying different grades at all times.

MAIN OFFICE, Perry-Payne Bldg., Cleveland, O.

THE W. L. SCOTT COMPANY,

ERIE, PA.

WHOLESALE DEALER IN

Shamokin-Wilkes Barre ANTHRACITE.
Youghiogheny, Mansfield, PITTSBURG.

Vessel Fueling a Specialty

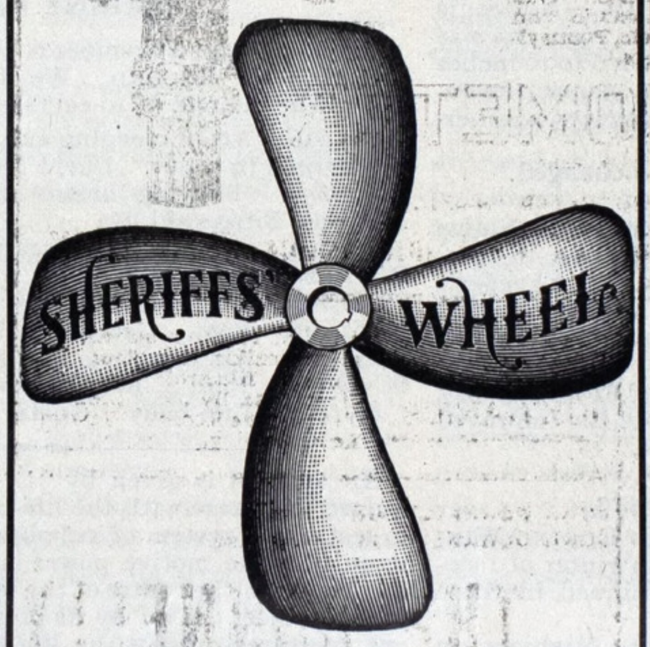
by steam lighter or car dump, at all hours. Electric light.

...Coals

MAIN OFFICE: SCOTT BLOCK. LONG DISTANCE 'PHONE 440.
FUELING OFFICE: CANAL DOCK. LONG DISTANCE 'PHONE 320.

SHERIFFS MFG. CO.

ESTABLISHED 1854.



MILWAUKEE, WIS.

JOHN MAHER, TREAS.
GEO. HIRSCH, GEN'L MGR.

CUYAHOGA BOILER WORKS,

139 WEST RIVER ST.,

CLEVELAND, - OHIO.

Go Home and Eat Turkey

on Thanksgiving. The Nickel Plate Road will sell tickets on Nov. 28th and 29th, good returning until Nov. 30th, inc., at one and one-third fare for the round trip, available within a distance of 150 miles. Write, wire, 'phone or call on nearest agent, C. A. Asterlin, T. P. A., Ft. Wayne, Ind., or E. A. Akers, C. P. & T. A., Cleveland, O. 251-47

If U Want a PUMP or SYPHON

Write to the E. W. Vanduzen Co. of Cincinnati, O., for their catalog 76. They give you facts and figures about their Steam Jet Pumps, Syphons and Barge Pumps. A postal will bring full information by return mail free of charge.

THE E. W. VANDUZEN CO., Cincinnati, O.

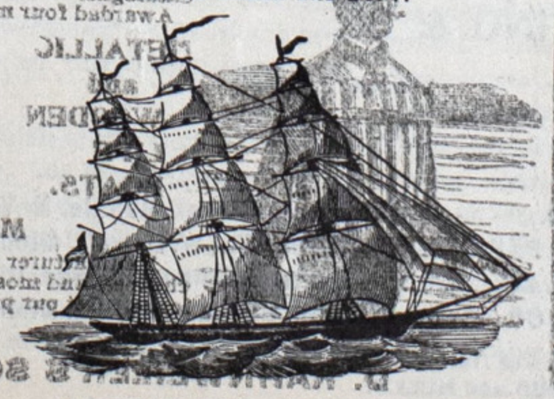
PASSENGER AND FREIGHT STEAMER WANTED.

Must have suitable night accommodations for at least 75 passengers, and freight capacity of not less than 300 tons, on draft not exceeding 13 feet. Address "400," care of Marine Record, Cleveland, Ohio. 46-50

Independent Ship Building and Repair Company,

CLEVELAND, O.

A. I. JACOBS, MANAGER AND SUPT.



Repair Work Promptly Attended to.

Special attention given to Steel and Iron Work.
Plates Reset and Riveted.

SHIP CARPENTERS AND CALKERS FURNISHED.

Office and Works 21 Main St.

TEL. CLEVELAND, M. 523 F. CUYAHOGA, C. 477

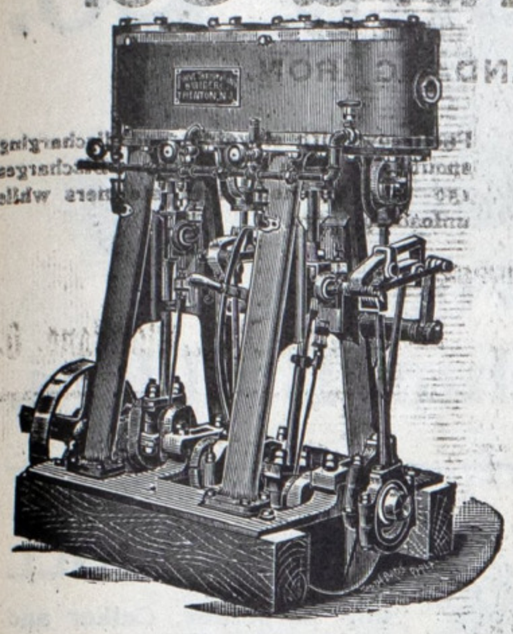
Residence 137 Franklin Ave.

TEL. CLEVELAND, M. 813 J. CUYAHOGA, A. 1087.

All night calls answered from residence.

ALSO WHOLESALE AND RETAIL DEALERS IN SHIP TIMBER.

John E. Thropp & Sons' Co.



BUILDERS OF

Compound and Triple Expansion

ENGINES,

Boilers, Surface Condensers, Propeller Wheels, Etc.

Contracts taken for yachts and tugs complete. Send for photographs of Engines and descriptive pamphlet.

Works on Delaware & Raritan Canal Basin.

TRENTON, N. J.

IN PRACTICAL USE ON THE BEST AND LARGEST LAKE STEAMERS

Using all Types of Boilers and all Pressures of Steam.

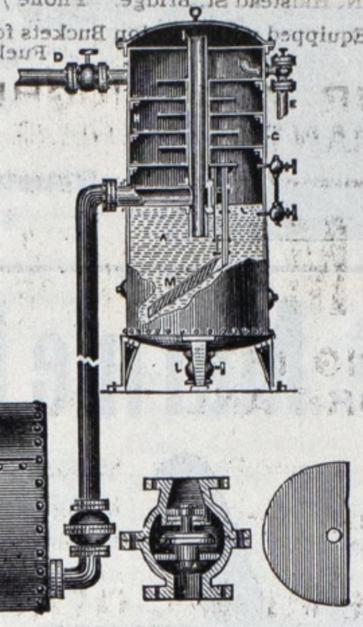
Every Purifier Warranted to Remove all Sediment or Scale-Forming Substance.

ROBERT LEARMONTH,

PATENTEE,

SEND FOR CIRCULAR. 100 WHITE BLDG., BUFFALO, N. Y.

THE BUFFALO FEED WATER HEATER AND PURIFIER.



NAMES OF STEAMERS ON THE LAKES USING THE BUFFALO FEED WATER HEATER AND PURIFIER:

Zenith Transit Co.'s steamers Empire City, Crescent City, Zenith City, Superior City, Queen City, Pennsylvania and John W. Gates.

The Republic Iron Co 's steamers America, Brazil, Thomas Maytham and Chili.

Mitchell Transportation Co.'s steamer Hendrick S. Holden.

Minnesota Iron Co.'s steamer Presque Isle.

American Steel Barge Co.'s steamer Alex. McDougall.

Lake Michigan & Lake Superior Transportation Co.'s steamer Manitou.

Bessemer Steamship Co.'s steamers S. F. B. Morse and Douglas Houghton.

American Transportation Co.'s steamers John Harper and Alex. Nimick.

Red Star Line's steamers Robert Mills and Wyoming.

Wilson Transit Line's steamers W. D. Rees and Andrew Carnegie.

And the steamer William R. Linn.

THE FLUSHOMETER

THE KENNEY SYSTEM.

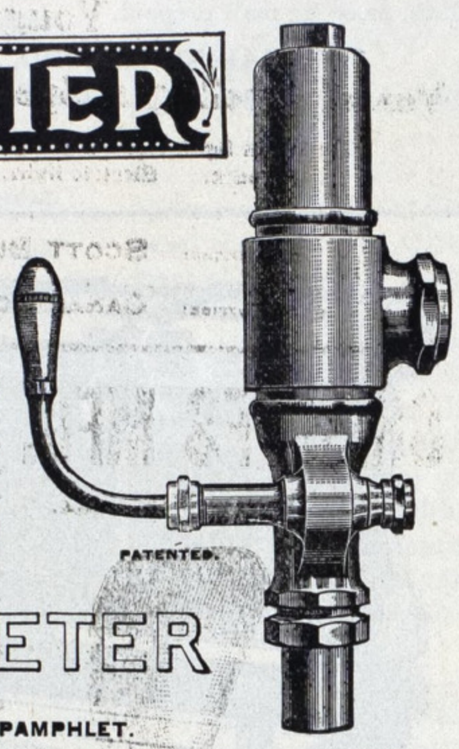
FOR FLUSHING WATER CLOSETS.

NO CUP LEATHERS OR SPRINGS.

The Best System ever Invented for Use on Steam Vessels.

Showing application of Flushometer.

Owners and constructors of Steamships, Yachts and Steamboats have found it indispensable. Used by the U. S. War and Navy Departments. Transports Grant, Sheridan, Burnside, Terry, Hooker, Thomas, Logan, Sherman and others. Also Albany Day Line Steamers; Norfolk and Washington S. S. Line; Steam Yachts Neaira, Aphrodite and Loando, and new Lake Steamers Illinois, Pennsylvania, Angeline and others.



PATENTED.

FLUSHOMETER

TRADE MARK.

SEND FOR ILLUSTRATED PAMPHLET.

THE KENNEY CO., 72-74 Trinity Place, NEW YORK.

THE CHASE MACHINE COMPANY,

ENGINEERS AND MACHINISTS.

MANUFACTURERS, UNDER THE CHASE PATENTS, OF

Fog Whistle Machines, Hoisting Engines, Steering Engines Automatic Towing Engines, Power and Drop Hammers, and other Machinery. Engineers' Supplies and General Jobbing.

111 ELM STREET. TELEPHONE, MAIN 994. CLEVELAND, O.

If you contemplate a trip either west or east you can secure advantages not found elsewhere if you will write, wire, 'phone or call at the City Office of the Nickel Plate Road, 189 Superior Street, 'phone Main 218 or Ticket Agent Euclid Avenue Station, 'phone Doan 817. Rates and tickets, first or second class to any point authorized east or west at any station on the Nickel Plate Road. 245-52

Chicago Nautical School

1612 Masonic Temple,

CHICAGO.

W. J. WILSON,
(Late Lieutenant U. S. Navy),
Principal.

A full and complete course of instruction in lake and ocean navigation. Also special branches taught those desiring to qualify themselves for better positions in the marine service. Students taught by correspondence. Students may begin at any time. Send for circular.

YAWLS

AND

LIFE BOATS

IN STOCK.

MICHIGAN YACHT & POWER CO.

DETROIT.

1540 JEFFERSON AVE.

PRACTICAL MECHANICS.

Applied to the requirements of the sailor. By Thos. McKenzie. Illustrated; 12 mo.; cloth, $1.50, by mail, prepaid. The Marine Record, Western Reserve Bldg., Cleveland, O.

JOHN DONNELLY, SR., PRES.
JOHN DONNELLY, JR., VICE PRES.

H. B. FOLGER, TREAS.
THOS. DONNELLY, SEC'Y.

THE DONNELLY SALVAGE AND WRECKING CO., Ltd.

KINGSTON, ONT.

EXPERIENCED DIVERS, TUGS, STEAM PUMPS, ETC.,

SUPPLIED ON SHORTEST NOTICE.

Sellers' Restarting Injector

A strictly first class machine at moderate cost

Perfectly automatic, has wide range of capacities, and raises water promptly with hot or cold pipes.

Very simple, has few parts and is easily repaired.

All parts interchangeable, made of the best bronze, and the workmanship is perfect. Send for special catalogue descriptive of this Injector.

JENKINS BROTHERS, Selling Agents
NEW YORK, BOSTON, PHILA., CHICAGO

NEVERSINK CORK JACKET AND LIFE BELT.

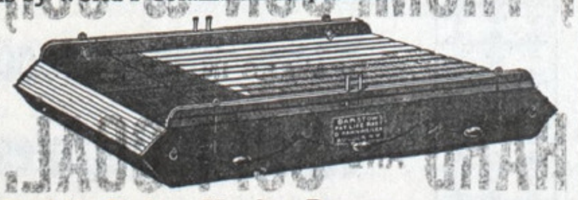
Warranted 24 lb. Buoyancy and full Weight of Cork, as required by U. S. Inspectors. **Consolidated Cork Life Preservers.** Superior to all others. **Rings Buoys and Fenders.** SAFEST CHEAPEST.

Approved and adopted by U. S. Board of Supervising Inspectors.

Also adopted by the principal Ocean, Lake and River Steamer Lines as the only Reliable Life Preserver. Vessels and trade supplied. Send for Catalogue.

Awardad four medals by World's Columbian Exposition.

METALLIC and WOODEN LIFE BOATS.



Metallic Life Rafts, Marine Drags.

Manufacturer of Woolsey's Patent Life Buoy, which is the lightest, cheapest and most compact Life Raft known. Send for illustrated catalogue. Get our prices before buying elsewhere.

D. KAHNWEILER'S SONS, 437 Pearl St., New York City.

Compasses Adjusted

For deviation, and deviation tables supplied. Great facilities for doing the work by day or night.

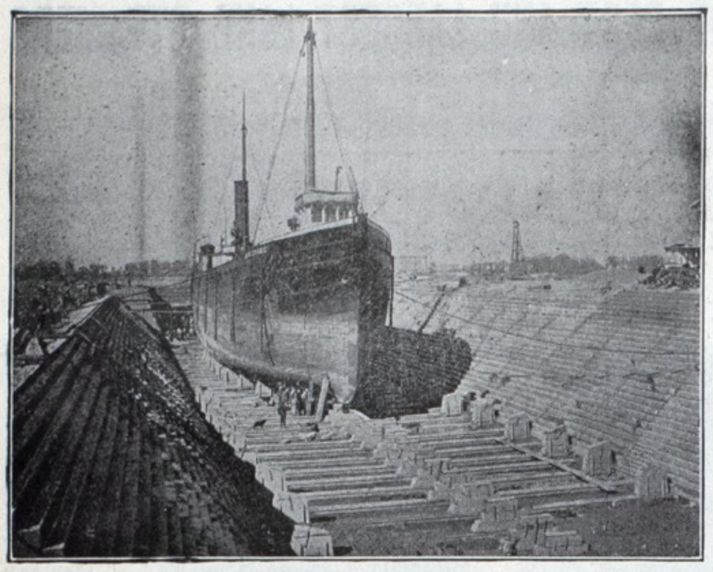
John Maurice.

Office, 24-26 Market St., CHICAGO.
Residence, 1213 Albany Avenue.

A. J. MORSE & SON.

DIVING APPARATUS

140 CONGRESS ST. BOSTON.



Craig Ship Building Co.

TOLEDO, OHIO.

New Dry-Dock 450 feet long, 110 feet wide on top, 55 feet wide on bottom, 16 feet water on sill.

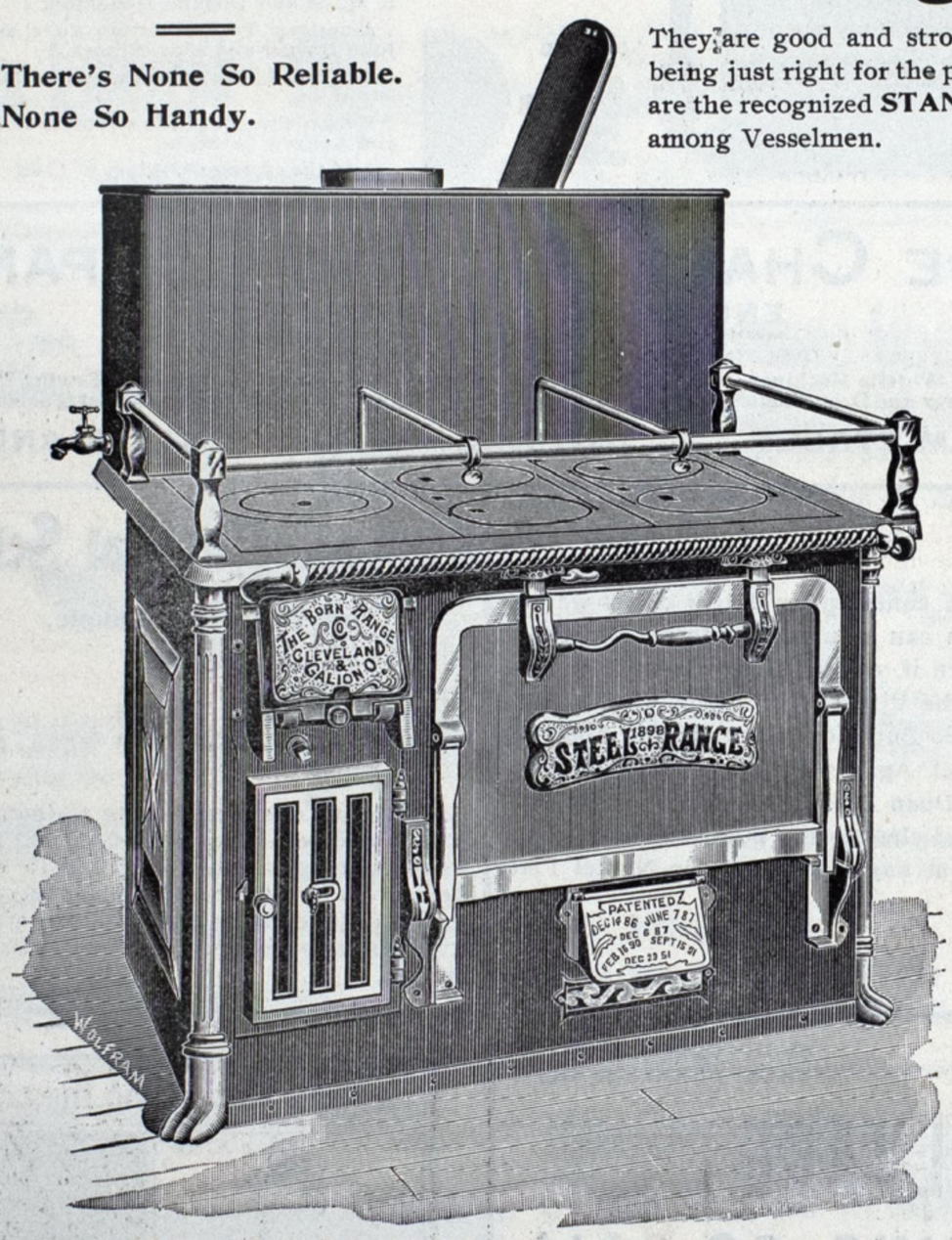
Repairs to Metal and Wooden Ships a Specialty.

Metal and Wooden Ship Builders.

The Born STEEL PLATE FRENCH Marine Ranges

There's None So Reliable. None So Handy.

They are good and strong, and being just right for the purpose, are the recognized **STANDARD** among Vesselmen.



Large illustrated catalogue with full description sent on application.

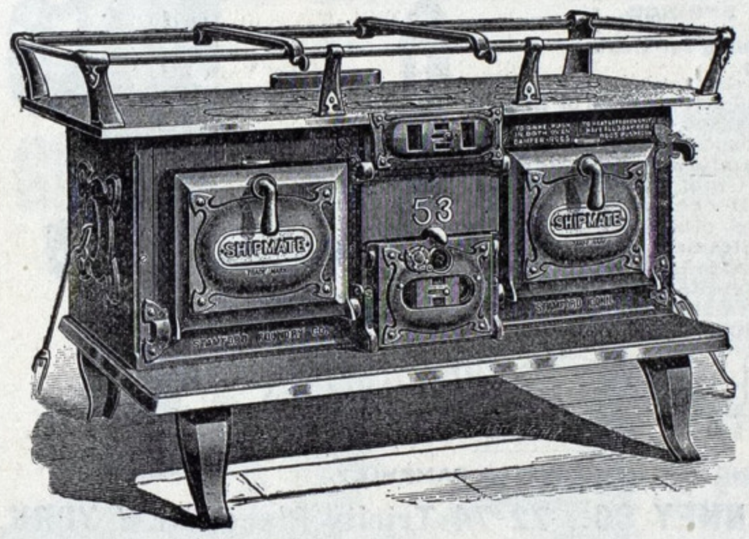
The Born Steel Range and Manufacturing Co.
CLEVELAND, OHIO.

Elementary Seamanship.

By D. Wilson Barker. Illustrated; 12 mo.; cloth, $2.00 by mail prepaid.

THE MARINE RECORD,
Western Reserve Bldg., Cleveland, Ohio.

JOHN C. JOLL
Ship Carpenter, Calker and Spar Maker.
Jobbing of all kinds promptly attended to.
'PHONES { MAIN 523 L. WEST 808 F. 45 Main St.,
Residence, 1097 Franklin Ave. CLEVELAND, O.



SHIPMATE RANGES.

The U. S. Government; railroad companies having large floating equipments; the owners of the largest schooners built; yacht owners; ship, bark and brig owners; and owners of almost every other kind of vessel, use Shipmate Ranges.

Sold by
Robt. C. Bialy, 923–925 Water St., Bay City, Mich.
Soo Hardware Co., Sault Ste. Marie, Mich.

THE STAMFORD FOUNDRY COMPANY,
STAMFORD, CONN.
Established 1830.

SCOTT'S COAST PILOT FOR THE LAKES.

PRICE, $1.50.

FOR SALE BY THE MARINE RECORD, WESTERN RESERVE BLDG., CLEVELAND, O.

W. S. JENKS, President. O. L. JENKS, Vice Pres. and Treas. A. M. CARPENTER, Sec. and Gen'l Mgr.

The Jenks Ship Building Co.

Office and Machine Shops
Fourth Street.
Yards
Foot of Lincoln Ave.

Steel and Wood Ship Builders.
Marine Engines and Boilers.

Port Huron, Mich.

STEAM WINDLASSES CAPSTANS AND STEERING APPARATUS